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A description of the building materials data base for Cincinnati, Ohio

Carolyn J. Merry and Perry J. LaPotin

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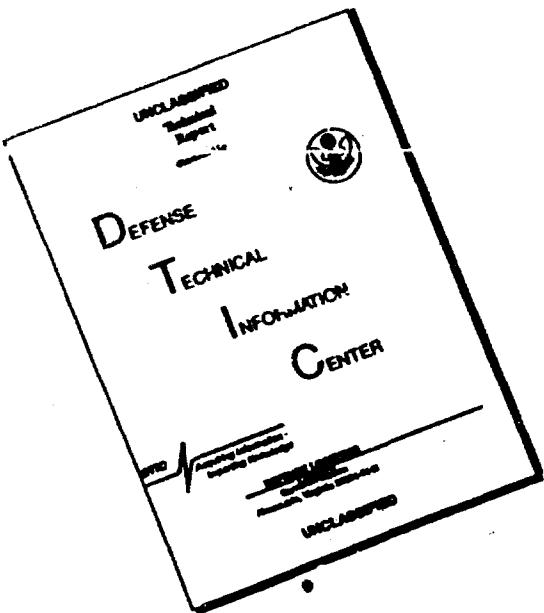
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PREFACE

This report was prepared by Carolyn J. Merry, Research Physical Scientist, Geological Sciences Branch, Research Division, U.S. Army Cold Regions Research and Engineering Laboratory, and Perry J. LaPotin, Senior Programmer, Department of Physics and Astronomy, Dartmouth College, Hanover, New Hampshire. This research has been funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under reimbursable order number DW21930284-01-0.

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CONTENTS

	<u>Page</u>
Abstract	1
Preface	ii
Introduction	1
Background	1
Objective	2
Design of the field sampling program	2
Sample frame definition	2
Selection of sample points	4
Data description	6
Discussion	8
Conclusions	17
Literature cited	18
Appendix A: Data	21
Appendix B: Program listing for determining footprint size for each sampling frame	29
Appendix C: Results of the frequency analysis	33

ILLUSTRATIONS

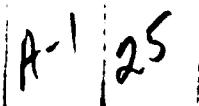
Figure

1. Site location map of Cincinnati, Ohio	2
2. Sampling frames for the Cincinnati, Ohio, area	4
3. Sample page of frequency analysis data	7
4. Census tracts for the Cincinnati, Ohio, area	10

TABLES

Table

1. The ten Task Groups in the National Acid Precipitation Assess- ment Program	1
2. The U.S. Geological Survey land use and land cover categories	3
3. Number of sample points for the Cincinnati, Ohio, building materials inventory	5
4. Footprint sizes for the Cincinnati, Ohio, sampling frames	6
5. The 21 material types grouped into five material classes	15
6. Summary statistics of the five composite material classes	18



A DESCRIPTION OF THE BUILDING MATERIALS
DATA BASE FOR CINCINNATI, OHIO

Carolyn J. Merry
Perry J. LaPotin

INTRODUCTION

Background

→ The Interagency Task Force on Acid Precipitation manages the National Acid Precipitation Assessment Program (NAPAP). There are ten Task Groups, one for each of the nine research areas in the National Program and one for international activities (Table 1). The goal of NAPAP is to develop and improve a data base that will help researchers understand the causes and effects of acid deposition and how it can be effectively managed. Our work on the acid rain program has been with the Environmental Protection Agency in support of Task Group G, which looks at Effects on Building Materials and Cultural Resources. → DD 1473

Table 1. The ten Task Groups in the National Acid Precipitation Assessment Program (after Interagency Task Force on Acid Precipitation 1984).

Task Group	Coordinating agency
A	NOAA
B	DOE
C	NOAA
D	DOI
E	EPA
F	USDA
G	DOI
H	EPA
I	EPA
J	DOS

NOAA - National Oceanic and Atmospheric Administration

DOE - Department of Energy

DOI - Department of Interior

EPA - Environmental Protection Agency

USDA - United States Department of Agriculture

DOS - Department of State

New Haven, Connecticut, was selected as the first New England test site to obtain ground truth data on building surface materials (Interagency Task Subgroup G Meeting, 14 December 1983). Data were also collected in Portland, Maine, and Pittsburgh, Pennsylvania, as part of an ongoing effort to examine the type and extent of building materials exposed to acid deposition in the northeastern U.S. Once sensitive building materials are located and their distribution understood within a few "representative" locations, the information may then be extrapolated or applied to other cities in the United States (Merry and McKim 1984).

Objective

This report presents the data base of building materials collected for Cincinnati, Ohio (Fig. 1). Distribution summaries will be presented in the form of frequency tables, summary statistics, histograms and bar charts. The data will be analyzed to determine the suitability of the collected variables for predicting the distribution of building materials when all surveys are completed.

DESIGN OF THE FIELD SAMPLING PROGRAM

Sample frame definition

The city of Cincinnati, Ohio, was subdivided into the sampling frames of Urban Central Business District (UCBD), Urban Livelihood, Industrial-Commercial (ULIC), Urban Multi-Family Residential (UMFR), Urban Single-Family Residential (USFR), Nonurban Suburbanizing (NSUB) and Nonurban Rural (NRUR) (Fig. 2). Each sampling frame consists of a number of census tracts that have a commonality on the basis of population density, single-unit dwellings and land use (Rosenfield 1984). The two 1980 census variables used to group the census tracts were population density (in persons per square kilometre), and dwelling units in one-unit structures (%). The three variables of land use (circa 1973) used for the grouping were built residential area (%), built nonresidential (%) and open land (%) (Table 2). The water surface area within a tract was not considered, since it was



Figure 1. Site location map of Cincinnati, Ohio.

Table 2. The U.S. Geological Survey land use and land cover categories (after Anderson et al. 1976 and Rosenfield 1984).

<u>Collapsed categories</u>	<u>Level I</u>	<u>Level II</u>
Built residential	1 Urban or builtup land	11 Residential
Built nonresidential		12 Commercial and services 13 Industrial 14 Transportation, communications and utilities 15 Industrial and commercial complexes 16 Mixed urban or builtup land 17 Other urban or builtup land
	2 Agricultural Land	
Open land, with buildings		21 Cropland and pasture 22 Orchards, groves, vineyards, nurseries and ornamental horticultural areas 23 Confined feeding operations 24 Other agricultural land
	3 Rangeland	
Open land, without buildings		31 Herbaceous rangeland 32 Shrub and brush rangeland 33 Mixed rangeland
	4 Forest Land	
		41 Deciduous forest land 42 Evergreen forest land 43 Mixed forest land
Omitted from analysis	5 Water	
		51 Streams and canals 52 Lakes 53 Reservoirs 54 Bays and estuaries
Open land, without buildings	6 Wetland	
		61 Forested wetland 62 Nonforested wetland
	7 Barren Land	
		71 Dry salt flats 72 Beaches 73 Sandy areas other than beaches 74 Bare exposed rocks 75 Strip mines, quarries and gravel pits 76 Transitional areas 77 Mixed barren land

improbable that a building would be sited there. These data were used in the Statistical Analysis System (SAS) to develop a trial classification. The classifications were adjusted by a discriminant function and by reviewing on the map the location and juxtaposition of tracts and the overall pattern of the tract classes.*

* Personal communication with James Wray, U.S. Geological Survey, 1984.

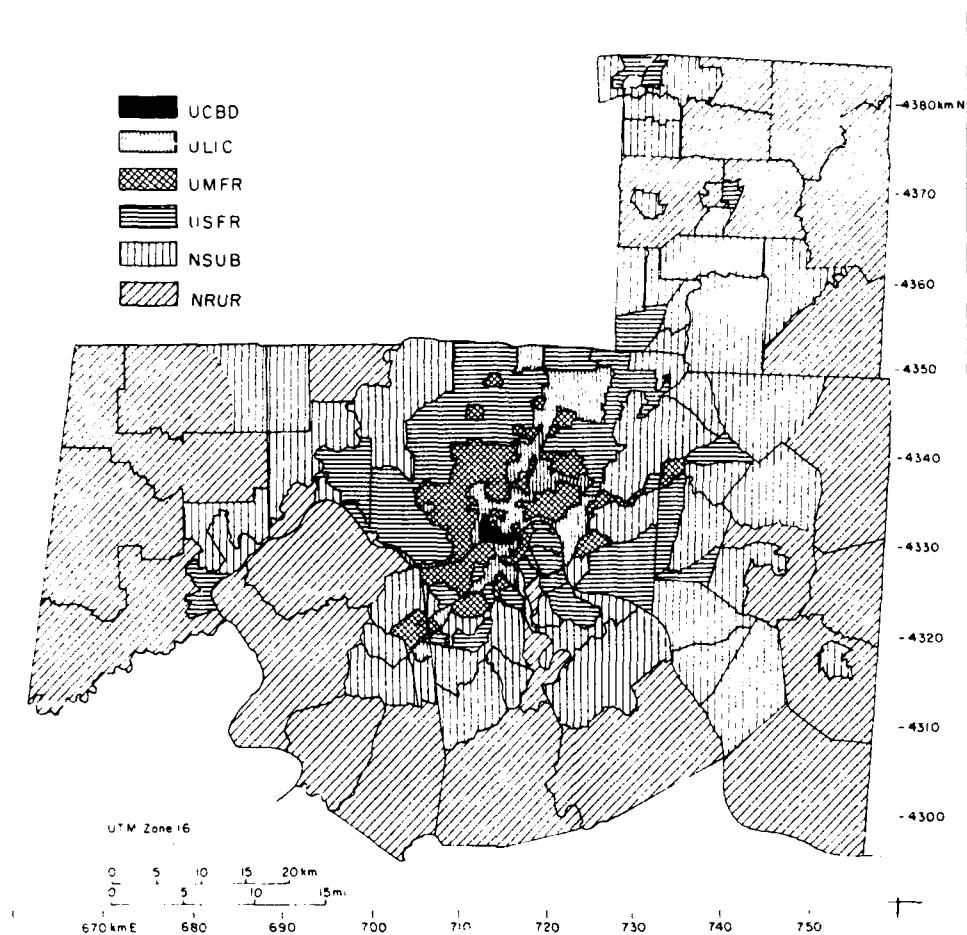


Figure 2. Sampling frames for the Cincinnati, Ohio, area (after Wray 1984).

Selection of sample points

The sample size of 70 was calculated previously from the Revere, Massachusetts, data base of buildings (Merry and LaPotin 1985a) by multiplying the minimum sample size determined from the cumulative multinomial distribution (30) by the design effect (2.34) using the Revere data (see Rosenfield 1984). To ensure the minimum of 70 buildings per sampling frame, 107 sample points were selected for each sampling frame (allowing for empty footprints in 35% of the sampled locations). The allowance for 35% empty footprints was determined from prior sampling studies in New Haven, Connecticut, and Pittsburgh, Pennsylvania (Merry and LaPotin 1985b, 1986a).

Table 3. Number of sample points for the Cincinnati, Ohio, building materials inventory.

Sampling frame	Number of points with buildings	Number of empty points	Total points
UCBD	72 (73%)	27 (27%)	99 (100%)
ULIC	48 (52%)	45 (48%)	93 (100%)
UMFR	47 (48%)	51 (52%)	98 (100%)
USFR	69 (71%)	22 (29%)	97 (100%)
NSUB	-	-	(92) (100%)
NRUR	-	-	(100) (100%)
Total*	236 (61%)	151 (39%)	387 (100%)

* Reflects only the sampled footprints. The points in the NSUB and NRUR sampling frames were not inventoried during the field survey.

The sample points were generated by the U.S. Geological Survey using a stratified, systematic, unaligned random sampling procedure. A similar sampling procedure (stratified, systematic, unaligned) was used previously by the U.S. Geological Survey for selecting samples for use in accuracy testing of the land use and land cover maps produced under the National Land Use and Land Cover Mapping Program (Ling and Rosenfield 1980). The advantage of the systematic sampling algorithm is that it distributes the sample units equitably over the entire sampling frame. In addition, it is area-weighted, which means that points are allocated on the basis of area (Rosenfield 1984). Table 3 shows the total number of points that were generated for the Cincinnati field survey program. The UTM coordinates for each sample point are shown in Appendix A.

Each sample point had a corresponding "footprint" or a given spatial area on the ground that had to be examined in the field. The total land area and the density of buildings (using the number of dwelling units) for each sampling frame from the 1980 census data were used as input to a simple PASCAL program written to determine the footprint size for each sampling frame (Appendix B). The footprint areas were constrained to sample no more than 30% of the total UCBD sampling frame. The final footprint sizes are presented in Table 4.

The field program began in January 1985 and was completed within two months by two-person teams. One person normally recorded the dimensions and material types of the building, the other person took photographs of the building and used an optical rangefinder to determine building height. Because of monetary constraints, only the four most urban sampling frames (i.e., UCBD to USFR) were inventoried in Cincinnati.

The building worksheet was developed by a committee composed of representatives from CRREL, the U.S. Environmental Protection Agency at Research Triangle

Park, N.C., and the U.S. Bureau of Standards. The worksheet form was designed to provide information on the location of the building in UTM coordinates; characteristics of the surrounding terrain in terms of census tract, land use type and sampling frame; dimensions and type of building; lot size dimensions; material distribution percentages in the foundation, first story and all above stories; and the surface area and material types for the roof, roof-mounted apparatus (vents, flues, stacks, skylights and flashing), chimneys, rain gutters, downspouts and fences. The worksheet used in the Cincinnati field survey is shown in Appendix A.

DATA DESCRIPTION

Each sample point was recorded on an individual data sheet during the survey. If the sample point was empty, the sections concerning description of the building were coded as zeros. If there was more than one building per sample point, a separate worksheet was completed for every building. From our Pittsburgh field inventory, we found that the number of buildings within a footprint could be quite high (Merry and LaPotin 1986a). Therefore, we modified the field sampling procedure to sample only the building closest to the center of the footprint, with the constraint that at least 10% of the footprint area was to be inventoried. In this manner, a maximum of three buildings was sampled for any individual

Table 4. Footprint sizes for the Cincinnati, Ohio, sampling frames.

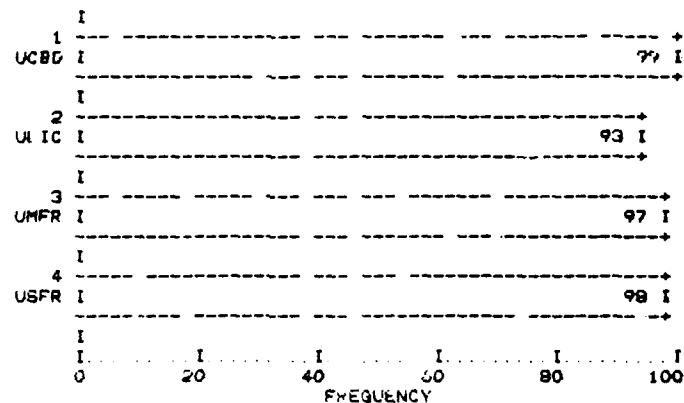
Sampling frame	Footprint size (ft)	Footprint size (m)
UCBD	435	133
ULIC	223	68
UMFR	201	61
USFR	321	98
NSUB	790	241
NRUR	1608	490

footprint. If more than one building was inventoried, a random selection was made of one of them and coded into our data base. The data were checked several times using the procedures outlined in Appendix A.

Appendix C describes the variables assigned to the Cincinnati field data. The frequency runs for the variables are organized by variable type (e.g., major classification, census tract data, general building description). Page formats are organized so that for each variable, numeric summaries are provided first (for example, the labels for each value with frequency of occurrence and percent of the distribution), followed by graphic presentation (histogram or bar chart), and ending with statistical summaries (for example, mean, mode, skewness and kurtosis). The sample size is presented at the bottom of each summary section, along with the

SFRAME SAMPLING FRAME

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
UCBD	1	99	25.6	25.6	25.6
ULIC	2	93	24.0	24.0	49.6
UMFR	3	97	25.1	25.1	74.7
USFR	4	98	25.3	25.3	100.0
	TOTAL	387	100.0	100.0	



MEAN	2.501	STD ERR	.037	MEDIAN	3.000
MODE	1.000	STD DEV	1.128	VARIANCE	1.271
KURTOSIS	-1.381	S E KURT	1.993	SKENNESS	-.009
S E SKEN	.124	RANGE	3.000	MINIMUM	1.000
MAXIMUM	4.000	SUM	968.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
30.00	3.000	56.70	3.000	75.00	4.000
90.00	4.000				
VALID CASES		387	MISSING CASES	0	

Figure 3. Sample page of frequency analysis data.

number of missing cases (or observations). Each observation corresponds to a footprint sample point for the four sampling frames in Cincinnati. Figure 3 is an example of how the frequency runs are presented in Appendix C.

Variables with continuous distributions or discrete variables with large numeric diversity are graphically represented by a histogram. Variables with small numbers of categories (e.g., sampling frame and land use), are presented by horizontal bar charts with the sample sizes shown within the bar areas. Summary statistics are included to describe the variable's distribution (e.g., mean, median, skewness and kurtosis).

Certain variables act as descriptors of building materials exposure and distribution, for example, exposed walls in footprint (EWIF) and average wall height (HT). Their corresponding frequency runs are tabulated using the sample of size 236, where buildings were observed in the footprints (Table 2). All other variables, not related to the building description, use the 387 total cases.

The column headings marked VALUE represent the actual observed value for the variable. Frequency (denoted FREQ) represents the number of cases falling within the category. Percent (PCT) and cumulative percent (CUM PCT) represent the percent of the total falling within the specified category and the running cumulative percent, respectively; the cumulative percent for the last category is always 100.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) software on a VAX-11/785 minicomputer (Nie et al. 1975). More in-depth discussion of the summary statistics used can be found in most elementary applied statistics texts (e.g., Snedecor and Cochran 1980).

DISCUSSION

The frequencies provided in Appendix C are separated into six sections.

The Major Classification Variables are land use designation (LU), sampling frame (SFRAME), sample point number (SPOINT) and census tract (TRACT) for the 387 total observations.

The land use classification for each sample point (LU) was based on its location within the digital land use data base from the Geographic Information Retrieval and Analysis System (GIRAS) (Mitchell et al. 1977). The aerial photography used in GIRAS is from 1972-74 (Loelkes 1977). The

minimum mapping unit for the land cover map is 10 acres (0.04 km²) for the level II categories 11-17, 23-24, 51-54, 75 and urban occurrences of 76 (Table 2). The minimum mapping unit for the remaining level II categories was 40 acres (0.16 km²).

Almost half of the sampled structures fall within the residential land use class (LU). Another 21% are within the commercial and services land use class, 15% are within the transportation land use class and 11% are within the industrial class. These four land use types make up 93% of the footprints sampled. Cumulative percents show that 98% of the sample points fall within the level I category of urban or builtup land, with the remaining 2% found within the level I category of agriculture (the cropland category).

The sampling frame number (SFRAME) shows the distribution of footprints within a given sampling frame. The distribution is uniform across the four sampling frames, with between 93 and 99 footprints per frame. The minimum number of sampled points for a given subcategory is 93, corresponding to the ULIC class. The frequency table for SFRAME displays the sample point distribution. The histogram shows that all of the sampling frames contain the minimum of 93 points.

The census tract (TRACT) variable represents the distribution of sampled footprints within a given 1980 census tract. The majority of sample points (17%) are within census tract 10, census tract 1 in Figure 4 (each census tract shown in Appendix C should be divided by 10 to account for subdivided census tracts) that corresponds to the UCBD sampling frame (Fig. 2 and 4). Another 9% were found within two census tracts (40 and 60 located within UCBD [4 and 6 in Fig. 4]) and 4% within tract 7010 (701 in Fig. 4) in the UMFR. The remaining 71% of the sample points are distributed uniformly, ranging from 1 to 9 sample points observed within each of the remaining sampled tracts. The histogram has three modes, illustrating that most of the sampled structures fall in the following tracts: 40% in tracts that number less than 1000, 24% between tract numbers 2100 and 2600, and 27% in tracts with a number above 5100.

The second section in Appendix C is the available Census Tract Information. These seven variables are derived from the U.S. Bureau of Census (1980) for the land areas within the five land use classes given by the U.S. Geological Survey GIRAS data base (corresponding to the 131 sampled

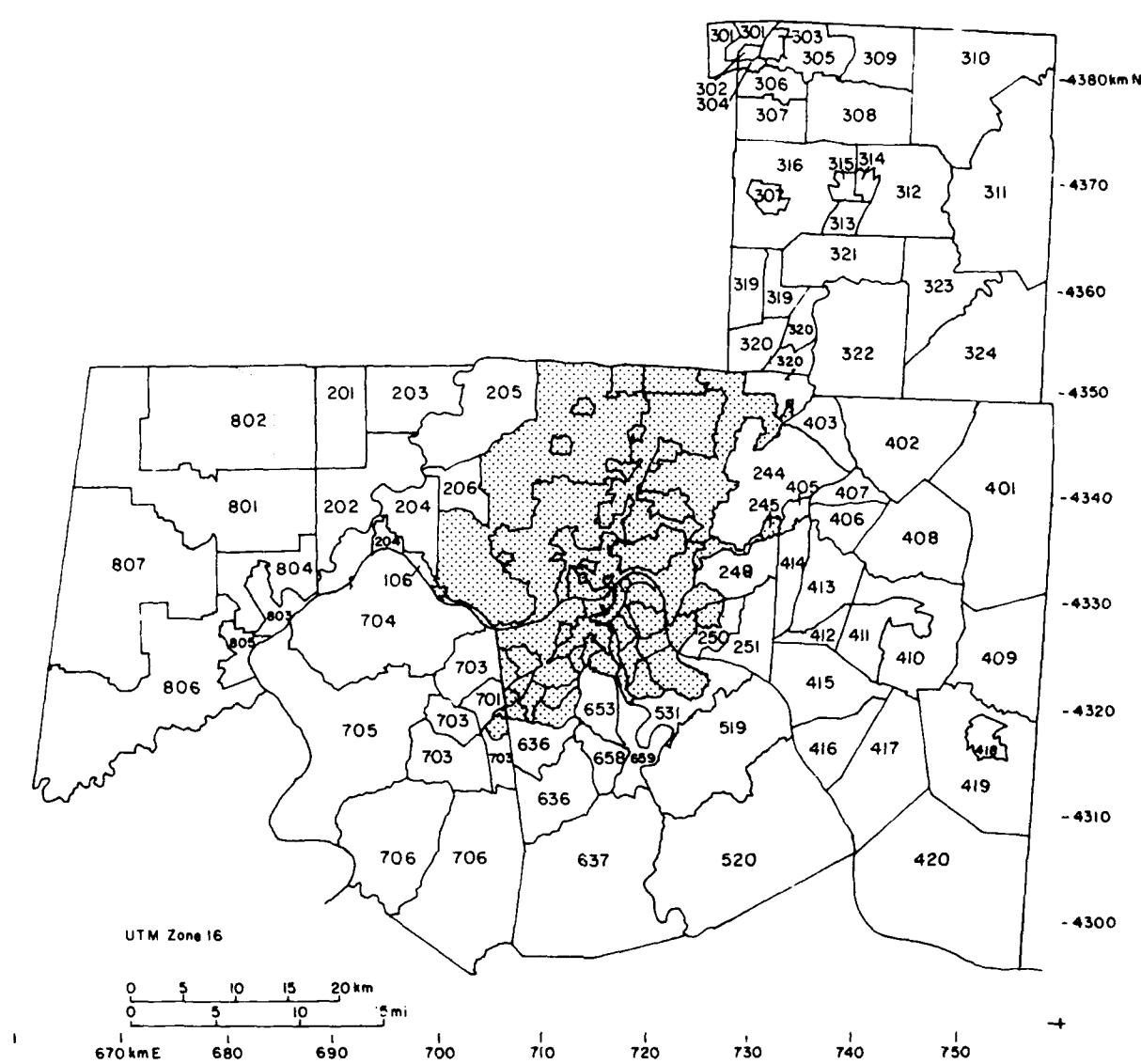


Figure 4. Census tracts for the Cincinnati, Ohio, area (after US Census Bureau 1980).

census tracts in Cincinnati). They are the total population in the census tract (POP), the total number of housing (dwelling) units in a census tract (DU) and the number of dwelling units in one-unit structures (Ul), and the following four land cover classes: the built residential land use (ABR), the built nonresidential land use (ABNR), the open land containing buildings (AOB) and the open land containing no buildings (AO). All are in millions of square feet.

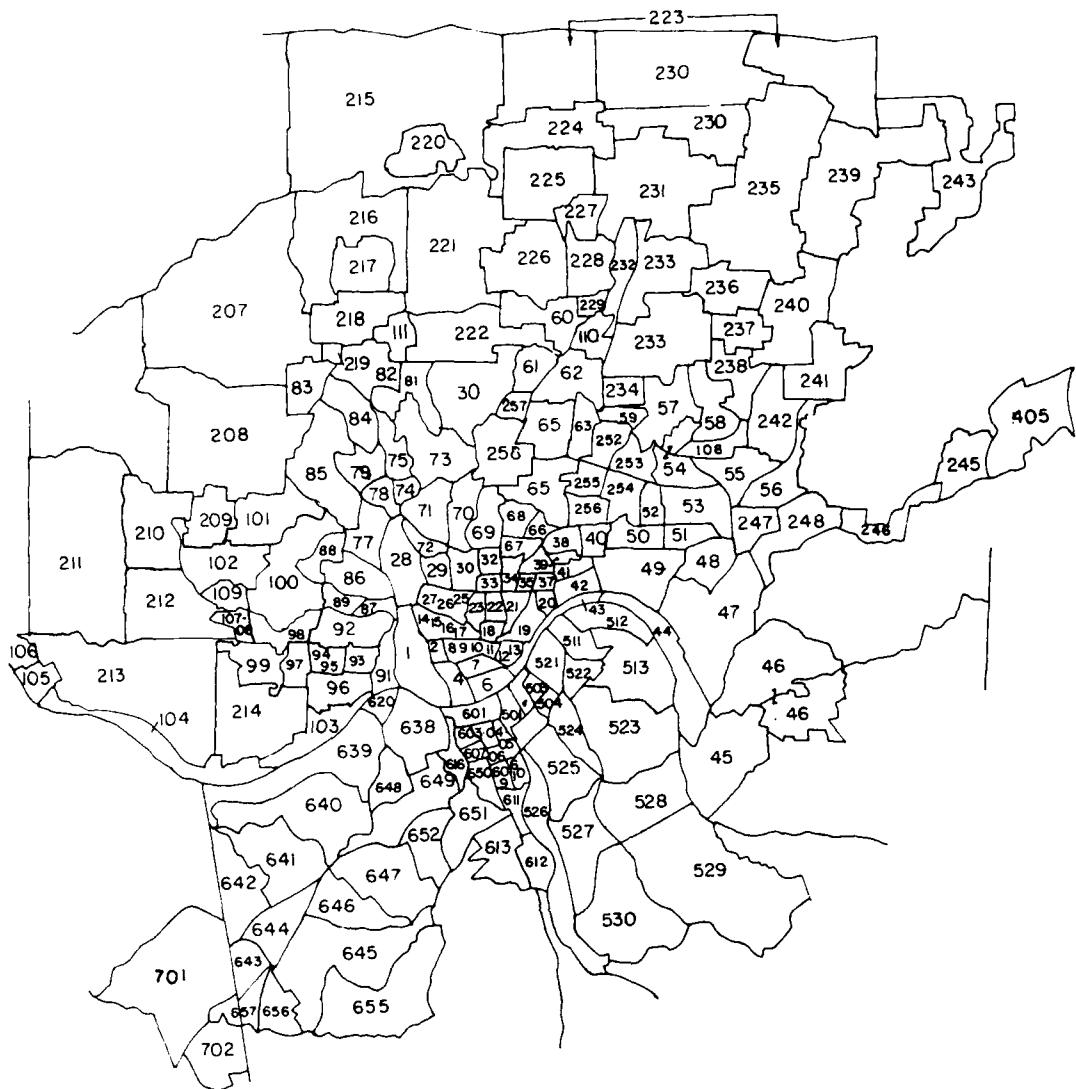


Figure 4 (cont'd).

The distribution of tract population (POP) indicates that 17% of the footprints were located in tracts with 172 persons. The average population per tract across the sampled region is 3778 persons, with a median value of 3488 persons. The populations of the Cincinnati tracts vary from 172 to over 14,060 people per census tract. However, percentiles suggest that the majority of tracts contained fewer than 7705 people (90%).

The total dwelling units in a given tract (DU) varies from 6 to 4897 units, with an average of 1433 dwelling units. The mode of 6 dwelling units per tract occurred in 17% of the sample. The inner quartile about the median ranges from 551 to 2129 total dwelling units per tract. The

average number of one-unit structures (U1) in a tract is 834. The range of dwelling units varies from 1 to 3524 units, with the most common value of one single-unit structure per tract (26%).

The built residential category (ABR) includes the level II urban category of residential (see Table 2). The built nonresidential category (ABNR) includes the urban categories of commercial and services, industrial, transportation, communications and utilities, industrial and commercial complexes, and the mixed urban or builtup land. The open land with buildings category (AOB) includes the other urban or builtup land, and the entire level I category of agricultural land. The open without buildings category (AO) includes the level I categories of rangeland, forest land, wetlands and barren land.

The land distribution in Cincinnati tends to favor built residential (ABR). Comparing medians, one notes that ABR covers 1.3 million ft^2 , while built nonresidential (ABNR) accounts for 900,000 ft^2 . Open land with buildings (AOB) is an order of magnitude larger than the comparable (AO) area without buildings (AOB = 70,000 ft^2 ; AO = 7000 ft^2).

General Building Descriptions, including wall dimensions, are the third section in Appendix C. Frequencies are tabulated using the 236 cases where buildings were observed. Variables include the approximate age of the structure (AGE), exposed walls in the footprint (EWIF), average wall height (HT), lot size (LOT1 and LOT2), number of buildings in the footprint (NBUILD), building dimensions (SIDE1 and SIDE2) and the building type (TYPE).

The first variable, AGE, represents the approximate age of the structure using the year 1900 as a base (e.g., 1984 is represented as 84, 1900 as zero, and 1801 as -99). Only 4% of the observed structures were built prior to 1900. The majority of the structures observed were built from 1930 to the present. There was a spread of 133 years in building age, a mean construction date of 1950 and a median construction date of 1959; the most frequently observed construction date was 1970. The upper third of the building age distribution begins in 1970.

The exposed walls in footprint (EWIF) is the perimeter (in feet) of the buildings contained within the footprint. EWIF is recorded for use in calculating the portion of the building wall surfaces observed within a sampled footprint. Of the 236 structures sighted, 67% show EWIF values of

280 ft and below. The histogram indicates that the distribution is skewed to the right (skewness = 1.4), with a mean value of 335 ft and a lower median value of 192 ft. The percentiles indicate that 90% of the observed structures display EWIF values below 999 ft; the inner quartile about the median ranges from 148 to 417 ft.

The average wall height (HT) in feet for a sampled structure is also provided. Over a quarter of the buildings are lower than 18 ft, and the cumulative percents suggest that the majority of observed wall heights are below 30 ft (81%). Using 12 ft per story as an average, we see that 5% of the observations are of one-story structures, 45% two-stories and below, and 88% three-stories and below. The mean value of 28 ft corresponds to an average building size of slightly over two stories. The standard deviation of 17 ft reflects the small variance of buildings found in Cincinnati, relative to the maximum observed height of 160 ft.

Lot size (LOT1 and LOT2) represents the side dimensions (in feet) of the plot of ground surrounding the building being sampled. LOT1 represents the length of the plot and LOT2 represents its respective width. The person on the survey team estimated the lot size by using markers, such as fences and the proximity of adjacent buildings. The average lot dimension was of length 201 ft and of width 243 ft. The median lot size was 100 ft in length by 150 ft in width. The most frequently observed lot dimension was 100 ft. The percentiles show that 67% of the lot dimensions were 200 ft and below. The overall range of lot dimensions was 979 ft in length and 949 ft in width.

NBUILD was a variable added to the data set to represent the total number of buildings within a footprint. Because in Pittsburgh the survey teams encountered a large number of buildings to sample within the footprint area for the UCBD sampling frame (Merry and LaPotin 1986a), we decided to inventory the building located closest to the center of the footprint, with the constraint that 10% of the footprint would be sampled. In addition, no more than three buildings per footprint were to be sampled at each point (an economic constraint). About 26% of the footprints contained either one or three buildings. The average number of buildings found within a footprint was three. Approximately 12% of the sampled footprints contained four or more buildings.

The variables SIDE1 and SIDE2 are, respectively, the length and width dimensions (in feet) of the building. The average building dimension is 123 ft in length by 113 ft in width. The median building dimension is smaller — 60 ft in length by 40 ft in width. The range of dimensions is 989 ft for SIDE1 and 993 ft for SIDE2, while the most frequently occurring dimension is 30 ft for both SIDE1 and SIDE2. Both distributions are skewed to the right (skewness values of 2.5 and 2.8 respectively) suggesting more smaller-sized structures.

The building type classification (TYPE) is used for categorizing the use of the individual structures being sampled. In the frequency distribution, 151 (39%) of the 387 sampled footprints resulted in no structures being observed (Table 3). Of the footprints containing buildings (236), almost half were found to be one-unit residential structures. The other significant building type was commercial buildings (39%). The remaining building types contained from 1 to 6 observations per category.

Actual Spatial Areas of Building Material Types are presented in the fourth part of Appendix C for the five composite building material classifications recommended by the Interagency Task Force*. These areas represent the square footage of building surface walls potentially exposed to acid deposition. The five composite building materials computed are painted materials (APAIN), mortar/masonry (AMORT), stone materials (ASTONE), galvanized metal (AGALV) and all other materials (AOTHER). From the original building worksheet (Appendix A), the 21 material types were grouped into the above five categories (Table 5).

For the area of painted materials (APAIN), 8% of the sampled structures had no painted wall surface area. The 236 sampled structures showed a mean painted wall exposure of 3821 ft² and a median painted exposure of 1900 ft². The standard deviation of 6301 ft² is not surprising, given the range in exposures among individual structures of 67,736 ft². The distribution is extremely skewed to the right (skewness = 5.4) and is far more peaked (kurtosis = 46.2) than a normal distribution with similar mean and standard error; 90% of the painted exposure per structure was found to be below the 9960 ft² level.

Areas of exposed mortar-masonry material (AMORT) were observed on 166 structures, indicating that 30% of the footprints with buildings had no

* Personal communication with F. Lipfert, Brookhaven National Laboratory, 1984.

Table 5. The 21 material types grouped into five material classes.

APAINT

Painted wood (excl. stained)
Painted steel
Painted aluminum
Painted masonry
Painted concrete
Painted stucco
Painted other material
Painted other material (cannot identify)

AMORT

Bare brick
Bare block
Bare field stone

AGALV

Bare galvanized steel

ASTONE

Bare marble
Bare limestone
Bare granite

AOTHER

Bare wood (incl. stained)
Bare concrete
Bare glass
Bare vinyl
Bare other material
Bare other material (cannot identify)

mortar-masonry exposure. The mean mortar-masonry surface area (4502 ft^2) is higher than the median exposure (1770 ft^2), reflecting the skew of the distribution to the right (skewness = 4). The range of mortar-masonry surface area is $69,930 \text{ ft}^2$; however, the percentiles suggest that 75% of the sampled structures exhibited mortar-masonry exposures of 3501 ft^2 and below. Only 10% of the structures had exposures greater than $11,339 \text{ ft}^2$.

Most structures in the Cincinnati sample exhibited little or no bare stone exposure (ASTONE). Cumulative frequencies indicate that 85% of the footprints with buildings have no exposed bare stone surfaces. Percentiles indicate that 90% of the sampled buildings displayed 355 ft^2 or less of bare stone materials; the median and mode values were 0. The maximum exposed surface area was $24,273 \text{ ft}^2$.

A small number of structures (2%) had bare galvanized steel exposure (AGALV). Of the 236 footprints with buildings, 6 structures were composed of some portion of bare galvanized steel. Of the sampled footprints with buildings, 98% have no galvanized steel exposure. The summary statistics show a median and mode of 0, with a mean exposure of 47 ft^2 ; the maximum exposed galvanized steel surface area was 7541 ft^2 .

The fifth composite material class is the remaining materials category (AOTHER) that includes all other materials not classified into the above categories. The surface areas of the AOTHER category are relatively continuous and nonclustering, with a uniform frequency distribution. The percentile values reflect the uniformity of the distribution for surface wall areas of 566 ft^2 and below at the 75th percentile. The 90th percentile rises sharply to a maximum exposure for an individual building of 2332 ft^2 and above.

The fifth section in Appendix C is the Roof and Roof-Mounted Apparatus Items and Material Types. It contains the variables of exposed chimney area (CAREA), chimney material (CMAT), exposed roof area (ESAREA), roof material (ERMAT), roof slope (SLOPE) number of roof-mounted apparatus items or area (ITEM1, ITEM2, FLAREA) for the 236 observed buildings, and the roof apparatus material (RMAT, SKYM, FLMAT).

Nearly half of the structures had no chimney (CAREA = 0). The mean surface area of an observed chimney is 58 ft^2 with a standard deviation of 184 ft^2 ; 67% of chimney surface areas are 36 ft^2 and below. Values greater than 36 ft^2 rise uniformly toward a surface area of 800 ft^2 ; there were two 1800-ft^2 chimneys. The majority of chimneys (CMAT) were brick (42%). Less than 10% of the chimneys were painted or made of some other type of material.

The exposed surface area of the roof (ESAREA) shows a wide range of values from 60 to $488,400 \text{ ft}^2$. The mean surface area is $24,910 \text{ ft}^2$, with the most frequently occurring roof area (ESAREA) being 1200 ft^2 , far below the average value. The standard deviation is twice the mean at $55,589 \text{ ft}^2$. The percentile values indicate that 67% of the roof areas are less than 7063 ft^2 . The exposure rises sharply, however, over the upper 33% of the distribution.

The roof material (ERMAT) was predominantly asphalt shingle (53%). Roofs of other material types (30%) were also prevalent in Cincinnati.

Over two-thirds of the roofs were sloped, rather than flat, as illustrated by the horizontal bar chart for the variable SLOPE.

There were 160 occurrences of vents, flues and stacks in the Cincinnati sample (ITEM1). These items (RMAT) were principally bare galvanized (31%), painted material (15%) and other material types (13%).

Only one skylight was observed in Cincinnati (ITEM2). The framing material of the skylight was made of bare galvanized metal (SKYM).

There were 70 occurrences of flashing material (FLMAT) recorded. Bare galvanized (18%) was the predominant material type. The flashing area, (FLAREA) ranged from 1 ft² to over 999 ft². The average area was 23 ft², with a median and mode value of 0, reflecting the absence of flashing materials within the sampled region.

The last part of Appendix C presents the variables of Rain Gutters, Downspouts and Fences for the 236 sampled structures. Rain gutters (RGMAT), and downspouts (DSPOUT) were found on 171 structures. Most rain gutters and downspouts were painted. The average length of a rain gutter (RGLENGTH) was 127 ft; for a downspout (DSLENG) the average length was 64 ft. A standard deviation of 173 ft was observed for the rain gutter length; the standard deviation was smaller for the downspouts, 112 ft.

There were 68 fences (FENCE) observed within the sampled footprints. Both fence length and height were recorded in the field, but were multiplied together to obtain the fence area variable (FAREA). The material type was principally bare galvanized chain link (18%). The average fence area was 197 ft², with a standard deviation of 359 ft².

CONCLUSIONS

A building materials sampling program for the Cincinnati, Ohio, area was conducted during January and February 1985. The stratified, systematic, unaligned random sampling procedure was applied to generate sample points across the six sampling frame areas. Using this procedure, a total of 579 points with a minimum of 93 sample footprints per frame were surveyed. A diverse data set was taken on building size and surface material, roof characteristics and roof apparatus, chimneys, gutters, downspouts and fences. The Cincinnati data are summarized according to overall material distribution by structure.

Table 6. Summary statistics of the five composite material classes.

Composite material class	Mean exposure (ft ²)	Median exposure (ft ²)	Inner quartile (ft ²)	Range (ft ²)	Structures not exhibiting the material (%)
APAINT	3821	1900	561 to 4567	67736	8
AMORT	4502	1770	0 to 3502	69930	30
AGALV	47	0	0 to 0	7541	98
ASTONE	619	0	0 to 0	24273	85
AOTHER	1362	150	0 to 566	52448	44

As was found with the surveys for New Haven, Connecticut, for Portland, Maine, and for Pittsburgh, Pennsylvania, the appropriateness of the five composite material categories was seriously questioned (Merry and LaPotin 1985b, 1986a and b). In Table 6, a number of summary statistics have been assembled to reinforce this conclusion. The two categories of AGALV and ASTONE are seriously under-sampled, whereas the AOTHER category containing numerous other material types is over-used (56% occurrence frequency). In addition, inner quartiles suggest that APAINT is over-sampled; APAINT contains too many painted categories of materials and is identified on 91% of Cincinnati's sampled structures. We feel that the composite material classifications should be redistributed for future analysis of this data base. In particular, painted materials should be declustered, and galvanized and bare stone exposure should be contained within the AOTHER category, reflecting their lack of exposure in Cincinnati and in the previous three surveys of New Haven, Portland and Pittsburgh. Other categories should be constructed from the AOTHER materials. These measures would emphasize specific materials whose exposure is being masked in the present composite material classes.

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APPENDIX A: DATA

Listing of UTM coordinates for each sample point

UTM East	UTM North	CLNS	LO	UTM East	UTM North	CLNS	LO
31. 71266J.	4333630.	1	14	71. 714050.	4330999.	4	14
32. 712720.	4332970.	1	13	71. 714300.	4330961.	4	12
33. 71299J.	4332791.	1	14	72. 714300.	4330789.	4	14
34. 71256J.	4332781.	1	14	73. 714460.	4330649.	4	14
35. 712630.	4332679.	1	14	74. 714650.	4330650.	4	12
36. 713110.	4332640.	1	14	75. 714280.	4330621.	4	14
37. 712591.	4332550.	1	13	76. 714541.	4330661.	4	12
38. 712459.	4332441.	1	14	77. 714579.	4330293.	4	14
39. 712739.	4332440.	1	14	78. 714321.	4330241.	4	14
40. 712920.	4332440.	1	13	79. 714529.	4330393.	4	13
41. 713141.	4332351.	1	12	80. 714669.	4330640.	4	12
42. 713261.	4332310.	1	14	81. 714380.	4329669.	4	13
43. 712830.	4332280.	1	12	82. 716179.	4330693.	6	12
44. 712750.	4332160.	1	14	83. 716120.	4330759.	6	12
45. 71332J.	4332141.	1	14	84. 715739.	4330710.	6	14
46. 712430.	4332061.	1	14	85. 715130.	4330670.	6	12
47. 713410.	4332030.	1	12	86. 714946.	4330659.	6	12
48. 713379.	4331920.	1	14	87. 715760.	4330639.	6	14
49. 712740.	4331681.	1	12	88. 715160.	4330609.	6	12
50. 712871.	4331840.	1	12	89. 714990.	4330589.	6	12
51. 712520.	4331800.	1	14	90. 715489.	4330579.	6	14
52. 712771.	4331780.	1	14	91. 714801.	4330460.	6	14
53. 713330.	4331759.	1	14	92. 715670.	4330461.	6	12
54. 712759.	4331700.	1	14	93. 715901.	4330419.	5	12
55. 712390.	4331630.	1	14	94. 715570.	4330430.	6	12
56. 713070.	4331561.	1	14	95. 715341.	4330370.	6	12
57. 712480.	4331550.	1	13	96. 714620.	4330341.	6	14
58. 712690.	433156J.	1	14	97. 714590.	4330339.	6	14
59. 712876.	4331471.	1	12	98. 715160.	4330181.	6	12
60. 713399.	4331390.	1	12	99. 714670.	4330830.	6	13
61. 713381.	4331340.	1	14	101. 715111.	4331J99.	7	12
62. 713330.	4331210.	1	12	102. 713810.	4332171.	15	12
63. 713050.	4331199.	1	12	103. 716220.	4331999.	19	12
64. 712699.	4331141.	1	14	104. 715280.	4332419.	23	12
65. 712480.	4331129.	1	13	105. 712491.	4336019.	28	15
66. 712950.	4331110.	1	12	106. 712730.	4334929.	28	15
67. 712880.	4331061.	1	12	107. 713230.	4333660.	26	11
68. 713080.	4331020.	1	12	108. 712619.	4333260.	28	14
69. 712619.	4330971.	1	13	109. 714690.	4334951.	30	12
70. 713370.	4330940.	1	12	110. 715090.	4334950.	30	11
71. 713610.	4330919.	1	12	111. 714790.	4334501.	30	12
72. 713710.	4330890.	1	12	112. 717290.	4334049.	37	11
73. 712360.	4330880.	1	14	113. 717590.	4333470.	37	11
74. 713543.	4330860.	1	12	114. 717529.	4335359.	38	14
75. 713220.	4330800.	1	14	115. 722250.	4330641.	44	17
76. 713690.	4330779.	1	14	116. 722630.	4330660.	44	17
77. 713289.	4330760.	1	14	117. 724730.	4334460.	47	21
78. 712380.	4330751.	1	14	118. 724740.	4333141.	47	21
79. 712540.	4330729.	1	14	119. 723750.	4332550.	47	17
80. 71469J.	4330721.	1	14	120. 722510.	4330980.	47	14
81. 712920.	4330731.	1	14	121. 721419.	4337650.	54	14
82. 713659.	4330511.	1	13	122. 723021.	4338050.	55	12
83. 713719.	4330490.	1	13	123. 724849.	4337549.	55	11
84. 712840.	4330470.	1	13	124. 71861.	4341690.	51	12
85. 713350.	4330470.	1	13	125. 717520.	4339941.	64	13
86. 713930.	4330450.	1	13	126. 717180.	4339580.	64	14
87. 713010.	4330430.	1	13	127. 717960.	4338449.	64	13
88. 713661.	4330319.	1	13	128. 716890.	4335909.	66	12
89. 713760.	4330259.	1	13	129. 711570.	4335510.	77	12
90. 714130.	4330190.	1	13	130. 711731.	4337280.	76	17
91. 713600.	4330170.	1	13	131. 711931.	4330999.	91	13
92. 713850.	4330090.	1	13	132. 737270.	4333500.	109	16
93. 714130.	4330010.	1	13	133. 718641.	4352199.	223	12
94. 713990.	4329999.	1	13	134. 719810.	4352080.	223	14
95. 714160.	4329940.	1	13	135. 719730.	4345191.	226	12
96. 713970.	4329870.	1	13	136. 722440.	4352350.	230	14
97. 714340.	4331141.	4	12	137. 722780.	4352320.	230	12
98. 713930.	4331110.	4	14	138. 724781.	4352328.	230	21
99. 714500.	4331079.	4	12	139. 722260.	4352160.	230	14

<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>	<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>	
40.	720910.	4351650.	230	13	21.	713570.	4346720.	210
41.	721489.	4355110.	230	13	29.	719610.	4347261.	227
42.	723240.	4357540.	230	11	30.	722031.	4345259.	232
43.	721959.	4349620.	230	13	31.	721960.	4344660.	232
44.	724820.	434921.	230	11	32.	719750.	4342720.	232
45.	724390.	434860.	230	11	33.	726641.	4341700.	240
46.	722540.	4345240.	231	12	34.	727900.	4336090.	246
47.	722270.	4348470.	231	15	35.	735190.	4342009.	405
48.	72361.	4346010.	231	11	36.	734140.	4339351.	405
49.	721230.	4346630.	231	21	37.	733739.	4337330.	405
50.	722760.	4346300.	231	11	38.	717260.	4336560.	503
51.	720860.	4345829.	232	13	39.	717481.	433C350.	503
52.	722150.	4345520.	232	11	40.	717140.	4329310.	505
53.	723121.	4344950.	232	11	41.	716581.	4326811.	505
54.	722140.	4344330.	232	12	42.	715891.	4326670.	605
55.	726540.	4346670.	235	11	43.	716140.	4328301.	606
56.	72610.	4346660.	235	13	44.	716030.	4326240.	606
57.	724931.	4346610.	235	21	45.	715370.	4328100.	607
58.	723870.	4345900.	235	11	46.	715929.	4327641.	609
59.	726830.	4345890.	235	11	47.	716100.	4327140.	609
60.	720260.	4345850.	235	12	48.	713230.	4329630.	638
61.	726280.	4344740.	235	14	49.	713360.	4329190.	638
62.	72470.	4344439.	235	11	50.	713660.	4326870.	638
63.	724440.	4335349.	247	14	51.	713161.	4326060.	638
64.	719780.	4339310.	252	11	52.	711460.	4329710.	639
65.	721460.	4339230.	252	11	53.	711540.	4328811.	639
66.	721559.	4336510.	254	11	54.	718770.	4328000.	639
67.	719170.	4337631.	255	11	55.	713630.	4327590.	639
68.	719620.	4336070.	256	11	56.	706000.	4326520.	639
69.	715870.	4339390.	258	14	57.	708571.	4326489.	640
70.	715510.	4328621.	624	12	58.	702651.	4325769.	640
71.	716230.	4326510.	611	12	59.	709770.	4325660.	640
72.	714280.	4327490.	616	12	60.	709331.	4325640.	640
73.	715440.	4327710.	650	12	61.	710021.	4325091.	640
74.	715140.	4326669.	650	11	62.	707120.	4321729.	643
75.	706511.	4330809.	104	11	63.	707190.	4321380.	643
76.	701871.	4331139.	104	13	64.	707370.	4320976.	643
77.	703460.	4329320.	104	13	65.	706750.	4320499.	643
78.	705060.	4327989.	104	13	66.	709900.	4324161.	646
79.	706311.	4327550.	104	13	67.	713360.	4323859.	646
80.	707560.	4322721.	644	11	68.	710530.	4323220.	646
81.	707541.	4322180.	644	11	69.	711199.	4323121.	646
82.	707080.	4322130.	644	11	70.	710030.	4322661.	646
83.	707410.	4321860.	644	11	71.	711020.	4322380.	646
84.	707940.	4321730.	644	11	72.	711220.	4325091.	647
85.	706521.	4319670.	702	11	73.	711800.	4325W10.	647
86.	706630.	4319529.	702	12	74.	712340.	4324950.	647
87.	706390.	4319230.	702	11	75.	711970.	4324650.	647
88.	706150.	4318781.	702	11	76.	710779.	4324391.	647
89.	706560.	4318710.	702	11	77.	710250.	4324311.	647
90.	706130.	4318470.	702	11	78.	710960.	4324119.	647
91.	704940.	4318320.	702	11	79.	711520.	4324029.	647
92.	706190.	4317460.	702	15	80.	711930.	4323469.	647
93.	706260.	4317420.	702	15	81.	714571.	4325560.	651
94.	725540.	4331160.	46	21	82.	705399.	4322399.	701
95.	722850.	4331060.	47	14	83.	704070.	4322339.	701
96.	719900.	4334540.	49	11	84.	706020.	4322170.	701
97.	721150.	4334500.	49	11	85.	704560.	4321579.	701
98.	722931.	4336110.	53	17	86.	706350.	4320980.	701
99.	718680.	4343690.	60	11	87.	702790.	4320641.	701
100.	716940.	4343480.	60	12	88.	70651.	4320451.	701
101.	715690.	4336121.	69	11	89.	722670.	4320120.	701
102.	714660.	4337240.	70	11	90.	706400.	4320070.	701
103.	714180.	4336260.	71	11	91.	704359.	4320540.	701
104.	713320.	4337971.	73	21	92.	704620.	4319780.	701
105.	711810.	4336380.	79	11	93.	703351.	4319681.	701
106.	716669.	4341520.	80	12	94.	705700.	4319663.	701
107.	715140.	4340160.	80	11	95.	704000.	4319360.	701
108.	714340.	4340149.	80	11	96.	704741.	4319110.	701
109.	709000.	4341930.	83	11	97.	704090.	4318690.	701
110.	709360.	4340470.	83	11	98.	726370.	433W140.	46
111.	711200.	4334410.	86	11	99.	707311.	4331830.	99
112.	711460.	4332620.	92	12	100.	699400.	4332431.	106
113.	709940.	4332300.	92	11	101.	713480.	4343039.	111
114.	708030.	4332990.	96	11	102.	699110.	4339620.	204
115.	708930.	4335669.	100	11	103.	694360.	4336469.	204
116.	710930.	4329910.	103	11	104.	697840.	4335710.	204
117.	709760.	4329521.	103	11	105.	707450.	4334420.	208
118.	723631.	4338499.	108	11	106.	704760.	4337969.	208
119.	711611.	4346539.	217	12	107.	704569.	4337700.	210
120.	714750.	4350079.	220	11	108.	704069.	4336329.	210

UTM East	UTM North	CENS	LU	UTM East	UTM North	CENS	LU
12. 704410.	4336130.	210	11	93. 710620.	4318800.	655	11
13. 706610.	4339160.	211	12	95. 707860.	4320630.	656	11
14. 699930.	4336550.	211	17	96. 681391.	4326660.	865	11
15. 701991.	4335891.	211	12	97. 681430.	4325191.	865	12
16. 702510.	4335479.	211	11	98. 680030.	4324410.	805	11
17. 703420.	4334970.	212	11	99. 722451.	4326680.	45	11
18. 704110.	4333380.	212	17	00. 692430.	4351020.	201	21
19. 700570.	4332860.	212	11	01. 693980.	4339531.	202	21
20. 703720.	4332460.	213	11	02. 697460.	4335530.	204	21
21. 704339.	4331060.	213	11	03. 701120.	4341210.	236	17
22. 70370.	4331191.	213	11	04. 728399.	4344921.	244	12
23. 71579.	4342351.	219	11	05. 727771.	4339669.	244	11
24. 715370.	4345910.	221	11	06. 726590.	4332350.	249	11
25. 714510.	4344550.	221	11	07. 685250.	4328509.	803	21
26. 719950.	4352429.	223	12	08. 667360.	4332609.	804	14
27. 719229.	4352261.	223	14	09. 727760.	4384720.	301	21
28. 717640.	4349680.	224	12	10. 737041.	4361780.	305	11
29. 717651.	4349621.	225	17	11. 730669.	4379680.	306	11
30. 716930.	4347590.	225	11	12. 729160.	4376360.	307	11
31. 717160.	4345621.	226	11	13. 712740.	4374361.	307	11
32. 718200.	4345280.	226	11	14. 733690.	4374170.	307	11
33. 717970.	4343929.	226	11	15. 741260.	4367569.	313	12
34. 724040.	4351259.	230	13	16. 732691.	4367991.	317	21
35. 721570.	4350390.	230	13	17. 730920.	4363589.	319	21
36. 723719.	4349820.	230	11	18. 734370.	4354220.	320	11
37. 724140.	4346571.	230	11	19. 736150.	4353121.	320	11
38. 722250.	4342640.	233	11	20. 734790.	4364470.	321	21
39. 723660.	4341390.	233	11	21. 734180.	4359720.	323	11
40. 721840.	4340640.	233	11	22. 744489.	4355941.	322	11
41. 727880.	4348181.	239	11	23. 741250.	43555050.	322	11
42. 729520.	4347261.	239	11	24. 744889.	4352690.	322	11
43. 727210.	4347230.	239	11	25. 739839.	4351561.	322	22
44. 726570.	4343989.	240	11	26. 750070.	4359720.	323	11
45. 727151.	4342291.	241	12	27. 741510.	4346341.	402	11
46. 728120.	4340620.	241	11	28. 744490.	4345209.	402	11
47. 726260.	4346380.	241	11	29. 747610.	4344719.	402	11
48. 725699.	4339120.	242	11	30. 741910.	4343890.	402	11
49. 725780.	4338241.	242	11	31. 738760.	4348946.	403	11
50. 731261.	4352309.	243	12	32. 735560.	4346130.	404	11
51. 731460.	4345690.	243	11	33. 735680.	4345151.	404	11
52. 732040.	4337879.	245	11	34. 738060.	4341730.	404	11
53. 728430.	4364670.	301	11	35. 735790.	4341419.	404	11
54. 732370.	4362150.	303	21	36. 739830.	4339759.	406	11
55. 730530.	4361620.	304	12	37. 746960.	4341200.	408	11
56. 740541.	4370000.	314	11	38. 747170.	4334291.	408	11
57. 732960.	4355356.	320	21	39. 744650.	4333361.	408	12
58. 735810.	4354870.	320	11	40. 740459.	4325770.	411	11
59. 737620.	4341229.	407	12	41. 739829.	4324579.	411	11
60. 738360.	4340621.	407	11	42. 736260.	4337729.	413	14
61. 737331.	4346479.	407	11	43. 736549.	4332300.	413	11
62. 740981.	4339950.	407	11	44. 737220.	4331830.	413	11
63. 734539.	4326940.	412	11	45. 737260.	4330450.	413	11
64. 734269.	4332930.	414	11	46. 735330.	4328260.	413	11
65. 732650.	4327999.	414	12	47. 733320.	4326121.	415	12
66. 726110.	4330450.	513	11	48. 736690.	4325471.	415	17
67. 726930.	4329900.	513	11	49. 738191.	4325129.	415	11
68. 718460.	4330800.	522	11	50. 733919.	4320540.	415	14
69. 718131.	4330210.	522	11	51. 738090.	4319210.	415	11
70. 719730.	4329071.	523	11	52. 734209.	4318880.	415	14
71. 720581.	4328239.	523	11	53. 740150.	4318150.	416	11
72. 720380.	4327941.	523	11	54. 735470.	4317919.	416	11
73. 717499.	4329150.	524	12	55. 735959.	4314660.	416	11
74. 718490.	4328671.	524	11	56. 736460.	4313780.	416	11
75. 719070.	4327411.	524	11	57. 744200.	4321481.	417	11
76. 717540.	4327890.	525	11	58. 745771.	4314239.	417	11
77. 718090.	4327380.	525	11	59. 738990.	4313280.	417	11
78. 720320.	4325859.	528	11	60. 743420.	4311249.	417	11
79. 719240.	4325659.	528	11	61. 739841.	4308539.	417	11
80. 720550.	4324840.	529	11	62. 751620.	4316671.	418	12
81. 720830.	4323829.	529	11	63. 716670.	4326080.	526	14
82. 722379.	4322280.	529	11	64. 719520.	4322581.	530	11
83. 716500.	4324900.	613	11	65. 719770.	4322369.	530	11
84. 715511.	4324311.	613	12	66. 723270.	4317510.	531	11
85. 706650.	4325180.	641	11	67. 712960.	4314681.	636	11
86. 707320.	4325170.	641	11	68. 713131.	4312950.	636	11
87. 712471.	4325880.	648	11	69. 711130.	4310089.	636	11
88. 713580.	4325749.	652	11	70. 714610.	4319931.	636	12
89. 713250.	4324810.	652	11	71. 713390.	4309610.	636	11
90. 713751.	4323610.	652	11	72. 710980.	43C8020.	636	11
91. 713100.	4321460.	655	11	73. 707250.	4323050.	642	21
92. 709980.	4320380.	655	11	74. 708721.	4321980.	645	13

UTM East	UTM North	CLNS	LU	UTM East	UTM North	CLNS	LU
77. 708720.	4320370.	645	11	43. 749820.	4305660.	420	21
78. 710950.	4322430.	653	11	44. 753670.	4302799.	420	21
79. 715870.	4321760.	653	11	45. 744800.	4301790.	420	21
80. 716700.	4320940.	653	11	46. 732680.	4315500.	520	17
81. 716650.	4318779.	653	11	47. 731430.	4314630.	520	21
82. 715950.	4316319.	653	11	48. 727560.	4307220.	520	17
83. 716370.	4328620.	654	21	49. 726821.	4307140.	520	17
84. 716950.	4316390.	656	11	50. 723331.	4305979.	520	21
85. 716730.	4315710.	658	11	51. 731430.	4305831.	520	11
86. 714570.	4315550.	658	11	52. 736779.	4305340.	520	21
87. 716621.	4314940.	656	11	53. 734260.	4305260.	520	21
88. 717850.	4313980.	658	11	54. 724611.	4305231.	520	11
89. 704740.	4323619.	703	15	55. 715049.	4309949.	637	11
90. 705871.	4323590.	703	11	56. 721250.	4309111.	637	11
91. 703372.	4319640.	703	12	57. 717410.	4308919.	637	21
92. 704440.	4317790.	703	11	58. 721130.	4306321.	637	11
93. 738480.	4379321.	308	21	59. 714189.	4305860.	637	21
94. 737270.	4376261.	308	21	60. 717239.	4304940.	637	11
95. 740860.	4376140.	308	21	61. 725920.	4304940.	637	11
96. 739450.	4375249.	308	21	62. 719730.	4304849.	637	21
97. 744430.	4374380.	306	21	63. 713770.	4302760.	637	11
98. 741640.	4384859.	309	21	64. 713770.	4303639.	637	11
99. 738270.	4384670.	309	21	65. 711890.	4309411.	637	21
100. 743381.	4382969.	309	21	66. 716110.	4298689.	637	11
101. 743920.	4381220.	309	21	67. 717860.	4310219.	659	21
102. 749460.	4384500.	310	11	68. 718291.	4318130.	659	21
103. 754130.	4384310.	310	21	69. 719750.	4314621.	659	11
104. 754600.	4380530.	310	21	70. 718459.	4313529.	659	11
105. 746830.	4375420.	310	21	71. 717530.	4312180.	659	21
106. 746519.	4375159.	310	11	72. 692980.	4351451.	203	21
107. 755570.	4374449.	311	21	73. 697910.	4351310.	203	21
108. 753760.	4371080.	311	21	74. 693511.	4350140.	263	21
109. 754259.	4367760.	311	21	75. 699630.	4349969.	293	21
110. 751360.	4366170.	311	21	76. 703990.	4311190.	706	21
111. 744899.	4370056.	312	21	77. 701510.	4307220.	706	21
112. 747190.	4369319.	312	21	78. 700150.	4306980.	706	21
113. 743140.	4367019.	312	21	79. 701240.	4301390.	706	21
114. 746691.	4366350.	312	21	80. 699510.	4300210.	706	11
115. 742650.	4365380.	312	21	81. 671660.	4342219.	801	21
116. 737460.	4370110.	316	21	82. 667449.	4341940.	801	21
117. 731041.	4369491.	316	21	83. 677959.	4341179.	801	21
118. 734410.	4369492.	316	21	84. 684820.	4341160.	801	11
119. 733369.	4366230.	316	21	85. 680690.	4339861.	801	21
120. 732359.	4365390.	316	21	86. 674980.	4349591.	802	12
121. 755190.	4359130.	324	21	87. 680540.	4347560.	802	21
122. 754220.	4358351.	324	21	88. 678250.	4345510.	802	21
123. 751989.	4357920.	324	21	89. 684020.	4345430.	802	11
124. 748380.	4353999.	324	21	90. 682480.	4344960.	802	21
125. 755860.	4353211.	324	21	91. 677881.	4325281.	806	21
126. 751141.	4351980.	324	21	92. 676910.	4323969.	806	21
127. 755920.	4350371.	324	21	93. 672139.	4322220.	806	11
128. 755020.	4339089.	401	21	94. 676290.	4321880.	806	21
129. 754670.	4334300.	401	21	95. 667270.	4326939.	806	21
130. 754630.	4327190.	409	21	96. 665019.	4335591.	807	21
131. 753130.	4324499.	409	21	97. 672580.	4335000.	807	21
132. 747270.	4314196.	419	21	98. 676839.	4333790.	807	21
133. 753470.	4313591.	419	21	99. 677459.	4332750.	807	22
134. 750860.	4306059.	420	21	100. 664530.	4332370.	807	21

ROOFS

44 Material: tar, asphalt shingle, wood, painted metal, bare galvanized, tile, slate, copper, other (_____), cannot identify*

45 Sloped or flat?

46 51 Surface area (sq ft)

ROOF-MOUNTED APPARATUS

52 Vents, flues, and stacks: painted, bare galvanized, bare aluminum, other (_____), cannot identify*

53 54 Number of items

55 Skylights (framing): painted, bare galvanized, bare aluminum, other (_____), cannot identify*

56 57 Number of skylights

58 Flashing: painted, bare galvanized, bare aluminum, other (_____), cannot identify*

59 61 Area (sq ft)

CHIMNEYS

62 Material: painted, brick, vinyl, stone, other (_____), cannot identify*

63 66 Exposed surface area (sq ft)

RAIN GUTTERS

67 Material: painted, bare galvanized, vinyl, copper, other (_____), cannot identify*

68 70 Length (ft)

DOWNSPOUTS

71 Material: painted, bare galvanized, vinyl, copper, other (_____), cannot identify*

72 74 Length (ft)

FENCES

75 Material: bare galvanized chain link, bare galvanized stock, painted, brick, concrete block, field stone, bare wood, other (_____), cannot identify*

76 78 Length (ft)

79 80 Height (ft)

Sketch of Building

— WINDOWS — = —
 — WINDOWS ● — = —
 — WINDOWS ● — = —
 — WINDOWS ● — = —

ESTIMATED QUANTITIES OF BUILDING MATERIALS

FIRST STORY

SIDE 1:

SIDE 2:

SIDE 3:

SIDE 4:

SPECIAL NOTES & SKETCH:

0-5	Age of building
6-10	Height (ft)
11-15	Side 1 (ft)
16-20	Side 2 (ft)
21-25	Lot size, side 1 (ft)
26-30	Lot size, side 2 (ft)
31-35	Exposed walls in footprint (ft)

Photo ID _____

Street address _____

	Wall area (%)	All stories above 1st	Foundation	1st story
Painted walls				
1. Wood (excl. stained)				
2. Sheet				
3. Aluminum				
4. Masonry				
5. Concrete				
6. Stucco				
7. Other (_____)				
8. Cannot identify				
Bare walls				
9. Wood (incl. stained)				
10. Galvanized steel				
11. Concrete				
12. Brick				
13. Block				
14. Field stone				
15. Marble				
16. Limestone				
17. Granite				
18. Glass				
19. Vinyl				
20. Other (_____)				
21. Cannot identify				
Total	100	100	100	100

Procedures used to check the data

The data were checked several ways to ensure that the data base was correct. A major check of the material type percentages and the EWIF value was done before printing a frequency run of the entire data set.

The percentage check done was to sum the percentage of material types for the three stories of the building. We needed to ensure that the sum of all material types was 100%. Also, during the same computer run, we checked to see that every building had a foundation. (In some cases, the field team had not recorded a foundation.) For these cases, the photo with each building was examined to determine the material type of the foundation. We assumed 12 ft for the first story component of the building. In addition, during the same computer run, we would print out cases where the building height was greater than 14 ft (assuming 2 ft for the foundation and 12 ft for the first story) and there were no percentages recorded for the second and above stories.

The EWIF value was also checked against the lot size and the building side dimensions. A printout of these values was obtained for every building. We assumed that the building sides were the square root of the exposed roof area and would check to make sure that the EWIF was not larger than the building sides. There was also a check to ensure that the building was not larger than the lot size dimensions.

Several hand calculations were done for the building surface areas and compared against the computer-calculated surface areas. These values had to be consistent for different types of materials for a given building.

The frequency runs were checked for a number of items. The number of downspouts had to be the same as the number of rain gutters.

The empty footprints were noted for each sampling frame and verified against the number of buildings expected for each sampling frame.

The tally of land use and census tract numbers also had to be correct for each sampling frame.

The number of roof areas had to equal the number of buildings.

The number of cases had to be the same for a given accessory. For example, the number of material types and the surface area values had to be the same for the variables of roofs, fences, downspouts, rain gutters and roof-mounted apparatus. Although not every building had all these compon-

ents, if the value was recorded, then each material type had to have a corresponding surface area.

Strange or unexpected numbers for all the variables were always doublechecked against the building worksheets. For example, the EWIF values were always fairly even in value or divisible by 5. Any unusual numbers or large numbers were doublechecked, not only for the EWIF, but for the other variables as well.

APPENDIX B: PROGRAM LISTING FOR DETERMINING FOOTPRINT
SIZE FOR EACH SAMPLING FRAME

```
program FootSize (input, output);
{Footsize is a simple program for calculating footprint size for other}
{sampling frames based on some assumptions placed in the UCBD. The}
{following assumption pertain to the UCBD :}
{1. The sample size will be 107, allowing for empty footprints in 35% of}
{the sampled locations.}
{2. The alpha or proportionality coefficient, used to scale the remaining}
{sampling frames will be set to ensure that 30% of the spacial area }
{remains open in the UCBD}

const
  size = 107;                                {sample size in the UCBD}
  frames = 6;                                 {* of sampling frames}
  alpha = 0.026051;                            {proportionality coefficient derived}
                                                {from the 30% open area in the UCBD}

{density coefficients by SFrame location...change these for each city}

dUCBD = 1.47e-5;
dULIC = 5.6e-5;
dUMFR = 6.9e-5;
dUSFR = 0.447e-5;
dNSUB = 2.7e-5;
dNRUR = 0.1078e-5;

{*****}

var
  footFt, footM: integer;                     {footprint size in both Feet and Meters}
  Alabel: str255;                            {A labeler for the sampling frames}
  i: integer;                                {some counter variable OK?}

function density (frame: integer): real;
{A simple function to return the density values to the main loop, it also}
{sets a labeler to be used in the final output table.}
```

```
begin
  case frame of
    1:
      begin
        density := dUCBD;
        Alabel := 'UCBD: ';
      end;
    2:
      begin
        density := dULIC;
        Alabel := 'ULIC: ';
      end;
    3:
      begin
        density := dUMFR;
        Alabel := 'UMFR: ';
      end;
    4:
      begin
        density := dUSFR;
        Alabel := 'USFR: ';
      end;
    5:
      begin
        density := dNSUB;
        Alabel := 'NSUB: ';
      end;
    6:
      begin
        density := dNRUR;
        Alabel := 'NRUR: ';
      end;
    otherwise
  end; (Case frame of)
end; (Adensity)

begin (main)
  (Label the simple table and calculate the footprint sizes, first in feet)
  (and then in meters. Print back out the label,density, and footprint)
  (sizes on the current textport window)
```

```

writeln('  DENSITY  < FOOT>');
showText;

for i := i to frames do
begin
  if density(i) > 0 then {check first to see if density > 0}
  begin
    footFt := round(sqrt(alpha * size / density(i)));
    footM := round(sqrt((alpha * size / density(i)) / 10.76));
    writeln(Alabel, density(i) : 5, footFt : 5, 'ft', footM : 5, 'm');

    end
  else
    writeln(Alabel, ' undef  undef undef ');
  end;
end.

```

Text

DENSITY < FOOT>		
UCBO:	1.5e-5	435ft 133m
ULIC:	5.6e-5	223ft 68m
UMFR:	6.9e-5	201ft 61m
USFR:	4.5e-6	790ft 241m
NSUB:	2.7e-5	321ft 98m
NRUR:	1.1e-6	1608ft 490m

APPENDIX C. RESULTS OF THE FREQUENCY ANALYSIS

Description of the variables

<u>Variable name</u>	<u>Brief description</u>	<u>Detailed description</u>
LU	Land use	U.S. Geological Survey land use classification, where: 11 = residential, 12 = commercial and services, 13 = industrial, 14 = transportation, communications and utilities, 15 = industrial and commercial complexes, 16 = mixed urban or builtup land, 17 = other urban and or builtup land, 21 = cropland and pasture, 22 = orchards, groves, vineyards, nurseries and ornamental agricultural areas, 23 = confined feeding operations, 24 = other agricultural land, 31 = herbaceous rangeland, 32 = shrub and brush rangeland, 33 = mixed rangeland, 41 = deciduous forestland, 42 = evergreen forestland, 43 = mixed forestland, 51 = streams and canals, 52 = lakes, 53 = reservoirs, 54 = bays and estuaries, 61 = forested wetland, 62 = nonforested wetland, 71 = dry salt flats, 72 = beaches, 73 = sandy areas other than beaches, 74 = bare exposed rock, 75 = strip mines, quarries and gravel pits, 76 = transitional areas, 77 = mixed barren land.
SFRAME	Sampling frame	Sampling frame, see Figure 2, where:
		1 = UCBD 2 = ULIC 3 = UMFR 4 = USFR 5 = NSUB 6 = NRUR
SPOINT	Sample point number	Sampling point number within sampling frame.
TRACT	Census tract	Census tract number, see Figure 4.
POP	Tract population	Total population in census tract.
DU	Total dwelling units in tract	Total number of housing units in census tract.
U1	One-unit structures in tract	Number of dwelling units in one-unit structures in census tract.
ABR	Area of built residential	Land area of census tract in built residential (millions of ft ²).
ABNR	Area of built nonresidential	Land area of census tract in built nonresidential (millions of ft ²).
AOB	Area of open land with buildings	Land area of census tract in open land with buildings (millions of ft ²).

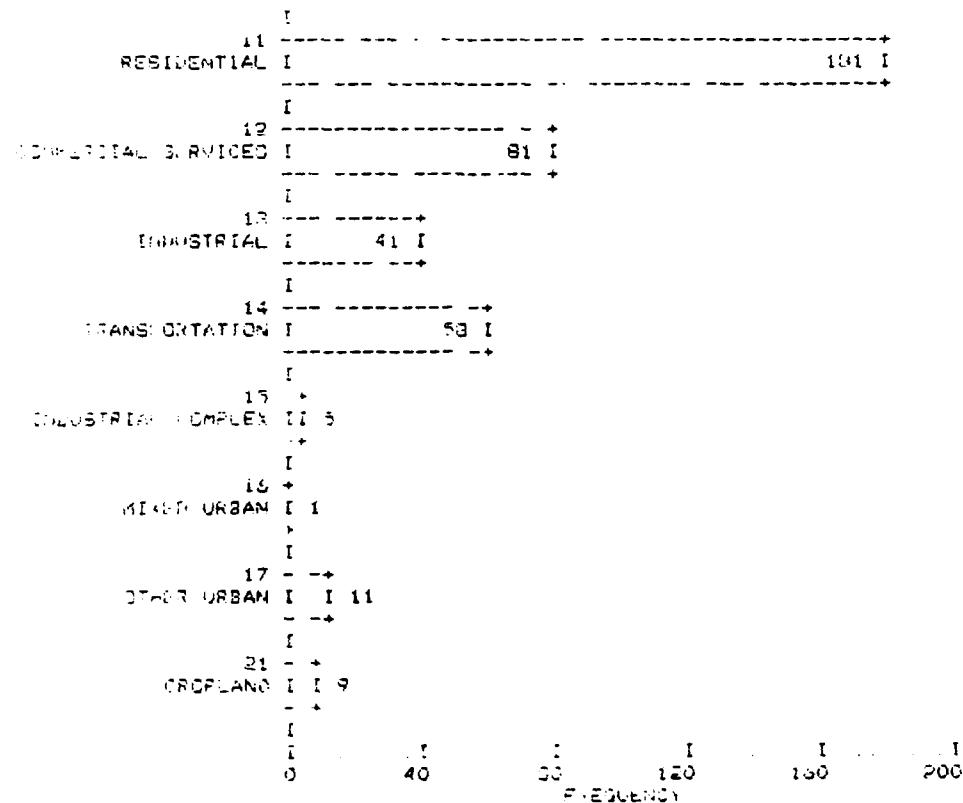
AO	Area of open land without buildings	Land area of census tract in open land with buildings (millions of ft ²).
AGE	Approx. age of structure	Approximate age of the building. 1900 is the base year (year 0). To obtain age, add the value to 1900. Ages less than 1900 are coded as negative values.
EWIF	Exposed wall in footprint	Exposed walls within a given footprint (ft).
HT	Average wall height	Average building height (ft).
LOT1	Lot size, side one	Lot size of one side associated with sampling point (ft).
LOT2	Lot size, side two	Lot size of the other side associated with sampling point (ft).
NBUILD	Number of buildings in footprint	The total number of buildings within the footprint.
SIDE1	Side one of building	Dimensions of one side of the building (ft).
SIDE2	Side two of building	Dimensions of the other side of the building (ft).
TYPE	Structure type-usage	Value label assigned to structure, where: 0 = no building, 1 = 1 housing unit, 2 = 2 housing units, 3 = 3 to 4 housing units, 4 = 5 to 9 housing units, 5 = 10 to 19 housing units, 6 = 20 to 49 housing units, 7 = 50 or more housing units, 8 = office buildings, 9 = commercial buildings, 10 = industrial buildings, 11 = educational building, 12 = religious building, 13 = health related buildings, 14 = farm, 15 = other buildings, 16 = cannot identify building.
APAINT	Area of painted surface	The total surface area of the building containing painted materials (ft ²).
AMORT	Area of mortar-masonry surface	The total surface area of the building containing mortar and masonry materials (ft ²).
ASTONE	Area of stone surface	The total surface area of the building containing stone materials (ft ²).
AGALV	Area of galvanized surface	The total surface area of the building containing galvanized material (ft ²).
AOTHER	Area of other materials	The total surface area of the building containing all other materials (ft ²).
CAREA	Exposed chimney area	Exposed surface area of chimney above roof (ft ²).
CMAT	Chimney material	Chimney material type, where: 0 = no chimney observed, 1 = painted, 2 = brick, 3 = stone, 4 = other chimney material, and 9 = cannot identify chimney material.

ESAREA	Area of exposed roof	Exposed roof area of building (ft ²).
ERMAT	Roof material type	Exposed roof material, where: 0 = no roof observed, 1 = tar, 2 = asphalt shingle, 3 = wood, 4 = painted metal, 5 = bare galvanized, 6 = tile, 7 = slate, 8 = copper, 9 = other roof material, and 10 = cannot identify roof material.
SLOPE	Roof slope	Roof configuration: 0 = no roof observed, 1 = sloped, 2 = flat.
ITEM1	No. of vents, flues, stacks	Number of items of roof-mounted apparatus.
RMAT	Roof apparatus material	Material type of roof-mounted apparatus, where: 0 = no roof apparatus material, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other roof-mounted apparatus material, and 9 = cannot identify roof-mounted apparatus material.
ITEM2	Skylights	Number of skylights.
SKYM	Skylight material	Framing material type of skylights where: 0 = no framing material of skylights observed, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other material types, and 9 = cannot identify material type.
FLMAT	Flashing material	Flashing material type, where: 0 = no flashing material observed, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other flashing material, and 9 = cannot identify flashing material.
FLAREA	Flashing area	Flashing surface area (ft ²).
RGMAT	Rain gutter material	Rain gutter material type, where: 0 = no rain gutters observed, 1 = painted, 2 = bare galvanized, 3 = vinyl, 4 = copper, 5 = other rain gutter material, and 9 = cannot identify rain gutter material.
RGLENGTH	Rain gutter length	Total length of rain gutters (ft).
DSPOUT	Material of downspout	Material type of downspouts, where: 0 = no downspout observed, 1 = painted, 2 = bare galvanized, 3 = vinyl, 4 = copper, 5 = other downspout material, and 9 = cannot identify downspout material.
DSLENG	Downspout length	Length of downspout (ft).
FENCE	Fence type	Material type of fences, where: 0 = no fences observed, 1 = bare galvanized chain link, 2 = bare galvanized stock, 3 = painted fence, 4 = brick, 5 = concrete block, 6 = field stone, 7 = bare wood, 8 = other fence material, and 9 = cannot identify fence material.
FAREA	Fence area	Area of fence (ft ³).

Major classification variables

LAND USE DESIGNATION

VALUE LABEL	VALUE	FREQUENCY	PERCENT	ALTO PERCENT	CUM PERCENT
RESIDENTIAL	11	181	46.8	46.8	46.8
COMMERCIAL SERVICES	12	81	20.9	20.9	67.7
INDUSTRIAL	13	41	10.6	10.6	78.3
TRANSPORTATION	14	58	15.0	15.0	93.3
INDUSTRIAL COMPLEX	15	5	1.3	1.3	94.6
MIXED URBAN	16	1	.3	.3	94.9
OTHER URBAN	17	11	2.8	2.8	97.7
CROPLAND	21	9	2.3	2.3	100.0
	TOTAL	387	100.0	100.0	



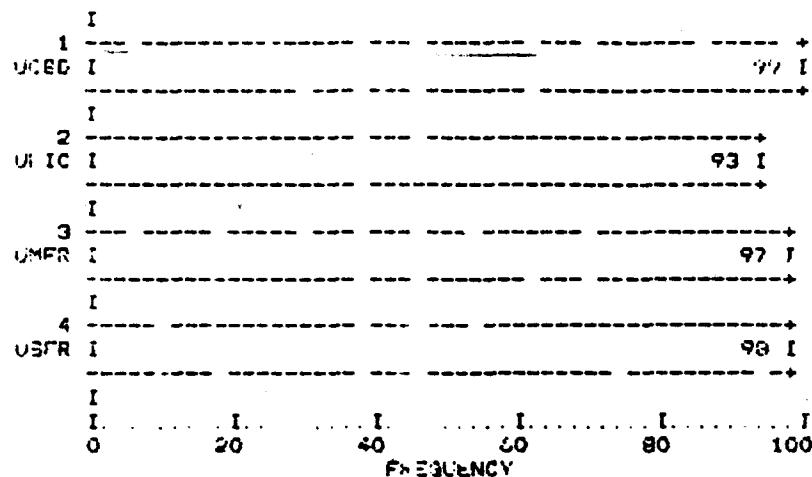
MEAN	12.339	STD ERR	.099	MEDIAN	12.000
MODE	11.000	STD DEV	1.935	VARIANCE	3.620
STANDARD	7.309	S E KURT	1.095	SKENNESS	2.423
ST. DEVIATION	124	RANGE	10.000	MINIMUM	11.000
MAXIMUM	21.000	SUM	4775.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	11.000	25.00	11.000	33.30	11.000
50.00	12.000	66.70	12.000	75.00	13.000
90.00	14.000				

AUTO CASES 397 MISSING CASES 0

S. 2047 **SAMPLING FRAGT**

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1-10	1	99	25.6	25.6	25.6
11-20	2	93	24.0	24.0	49.6
21-30	3	97	25.1	25.1	74.7
31-40	4	98	25.3	25.3	100.0
		-----	-----	-----	-----
	TOTAL	397	100.0	100.0	



MEAN	2.501	STD. ERR.	.057	MEDIAN	3.000
MODE	1.000	STD. DEV.	1.128	VARIANCE	1.271
ASYMMETRY	-1.381	S.E. KURT.	1.995	SKENNESS	-.009
S.E. MEAN	.124	RANGE	3.000	MINIMUM	1.000
S.E. STD. DEV.	4.000	SUM	968.000		

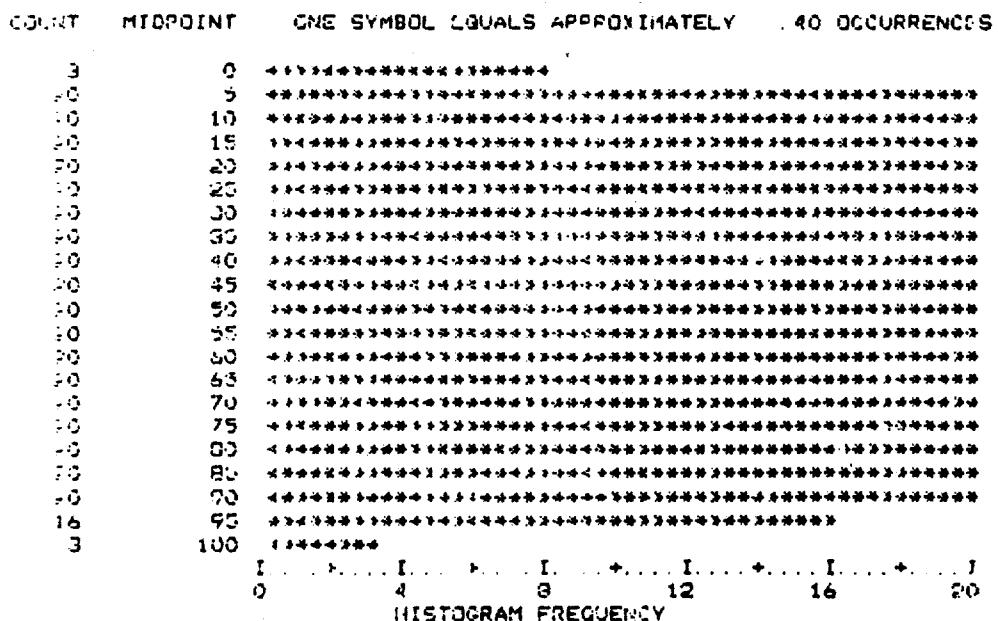
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
50.00	3.000	56.70	3.000	75.00	4.000
90.00	4.000				

44672 CASES 387 MISSING CASES 0

SPOTN. SAMPLE POINT NUMBER

VAL UC	CUM				CUM				CUM			
	FREQ	PCT	PCT	VAL UC	FREQ	PCT	PCT	VAL UC	FREQ	PCT	PCT	VAL UC
1	4	1	1	34	4	1	35	67	4	1	69	1
2	4	1	2	35	4	1	36	68	4	1	70	1
3	4	1	3	36	4	1	37	69	4	1	71	1
4	4	1	4	37	4	1	38	70	4	1	72	1
5	4	1	5	38	4	1	39	71	4	1	73	1
6	4	1	6	39	4	1	40	72	4	1	74	1
7	4	1	7	40	4	1	41	73	4	1	75	1
8	4	1	8	41	4	1	42	74	4	1	76	1
9	4	1	9	42	4	1	43	75	4	1	78	1
10	4	1	10	43	4	1	44	76	4	1	79	1
11	4	1	11	44	4	1	45	77	4	1	80	1
12	4	1	12	45	4	1	47	78	4	1	81	1
13	4	1	13	46	4	1	48	79	4	1	82	1
14	4	1	14	47	4	1	49	80	4	1	83	1
15	4	1	15	48	4	1	50	81	4	1	84	1
16	4	1	17	49	4	1	51	82	4	1	85	1
17	4	1	18	50	4	1	52	83	4	1	86	1

19	4	1	19	51	4	1	53	84	4	1	17
20	4	1	20	52	4	1	54	85	4	1	18
21	4	1	21	53	4	1	55	86	4	1	19
22	4	1	22	54	4	1	56	87	4	1	20
23	4	1	23	55	4	1	57	88	4	1	21
24	4	1	24	56	4	1	58	89	4	1	22
25	4	1	25	57	4	1	59	90	4	1	23
26	4	1	26	58	4	1	60	91	4	1	24
27	4	1	27	59	4	1	61	92	4	1	25
28	4	1	28	60	4	1	62	93	4	1	26
29	4	1	29	61	4	1	63	94	3	1	27
30	4	1	30	62	4	1	64	95	3	1	28
31	4	1	31	63	4	1	65	96	3	1	29
32	4	1	32	64	4	1	66	97	3	1	29
33	4	1	33	65	4	1	67	98	2	1	100
34	4	1	34	66	4	1	68	99	1	0	100



MEAN	48.902	STD ERR	1.424	MEDIAN	49.000
SDC	1.000	STD DEV	28.010	VARIANCE	704.590
SKTSESIS	-1.193	S & KURT	1.995	SKENESS	.006
SD CEN	.124	RANGE	98.000	MINIMUM	1.000
MAXIMUM	99.000	SUM	18925.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	10.000	25.00	25.000	33.30	33.000
50.00	49.000	66.70	65.000	75.00	73.000
90.00	68.000				

ALTD CASES 387 MISSING CASES 0

TRACT CENSUS TRACT

TRACT	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
100	63	17	17	2042	3	1	43	3011	1	0	57
101	15	4	21	2052	2	1	44	3030	1	0	59
102	10	5	26	2102	1	0	44	3040	1	0	59
103	1	0	26	2103	2	1	45	3140	1	0	69
104	1	0	26	2110	4	1	46	3201	2	1	69
105	1	0	26	2121	2	1	46	4050	3	1	70
106	1	0	27	2122	1	0	47	4070	4	1	71
107	4	1	28	2130	1	0	47	4120	1	0	71
108	3	1	28	2131	1	0	47	4140	2	1	72
109	2	1	29	2132	1	0	47	5030	2	1	72
110	1	0	29	2170	1	0	48	5050	2	1	73
111	2	1	30	2190	1	0	48	5130	2	1	73
112	1	0	30	2200	2	1	49	5220	3	1	73
113	1	0	30	2211	1	0	49	5230	3	1	74
114	5	1	32	2212	1	0	49	5240	3	1	75
115	2	1	32	2231	4	1	50	5250	2	1	75
116	1	0	32	2240	1	0	50	5280	2	1	76
117	1	0	33	2250	2	1	51	5290	3	1	76
118	2	1	33	2260	3	1	51	6040	1	0	77
119	2	1	34	2270	1	0	52	6050	1	0	77
120	1	0	34	2290	1	0	52	6060	2	1	78
121	3	1	35	2300	4	1	53	6070	1	0	78
122	1	0	35	2301	7	2	55	6090	2	1	78
123	1	0	35	2302	3	1	56	6110	1	0	79
124	1	0	35	2310	5	1	57	6130	2	1	79
125	1	0	36	2320	1	0	57	6160	1	0	79
126	1	0	36	2321	4	1	58	6380	4	1	80
127	1	0	36	2322	2	1	59	6390	5	1	80
128	1	0	36	2330	3	1	59	6400	5	1	80
129	1	0	37	2350	9	2	61	6410	2	1	83
130	3	1	37	2390	3	1	62	6430	4	1	83
131	2	1	38	2400	0	0	63	6440	5	1	84
132	1	0	38	2401	1	0	63	6460	6	2	87
133	1	0	39	2410	3	1	64	6470	7	2	90
134	1	0	39	2420	2	1	64	6480	1	0	90
135	1	0	39	2430	1	0	65	6500	2	1	90
136	1	0	40	2450	1	0	65	6510	1	0	91
137	1	0	40	2460	1	0	65	6520	3	1	91
138	2	1	40	2470	1	0	65	6530	3	1	92
139	5	1	42	2520	2	1	66	6560	1	0	93
140	1	0	42	2540	1	0	66	7010	16	4	97
141	1	0	42	2550	1	0	66	7020	7	2	97
142	1	0	42	2560	1	0	67	8050	4	1	100
143	1	0	43	2580	1	0	67				

18-117 REPORTANT 0146 910100Z JUN 16 485004Z JUN 16 4 000000Z JUN 16 CORRECTING 10

STATISTIC	DEB8 557	STD EPP	131 504	MEAN	2240 000
VARIANCE	11 000	STD DEB	1567 001	VARIANCE	6593008 18
SKEWNESS	11 1.1	STD X LAT	1 521	SKEWNESS	575
MINIMUM	11 1.4	RANGE	8040 001	MINIMUM	10 000
MAXIMUM	11 1.2	STD	77727 11	MAXIMUM	23 000

PERCENTILE	VAL_E	PERCENTILE	VAL_E	PERCENTILE	VAL_E
1	3.000	25	30	50	30
2	170.000	50	70	2175.500	75
3	1545.500				
4	1545.500				
5	1545.500				
6	1545.500				
7	1545.500				
8	1545.500				
9	1545.500				
10	1545.500				

Census tract information

2000 TRACT POPULATION

CUM FREQ	CUM FREQ			CUM FREQ			CUM FREQ		
	PCT	PCT	VALUE	PCT	PCT	VALUE	PCT	PCT	VALUE
1	1	17	3123.00	1	6	3145.00	2	1	32
2	5	22	3162.00	2	6	3185.00	2	1	32
3	0	22	3244.00	3	1	3255.00	1	0	33
4	4	26	3293.00	5	1	3302.00	1	1	34
5	0	26	3387.00	5	1	3323.00	3	1	35
6	1	26	3399.00	4	0	3342.00	1	0	36
7	0	28	3406.00	4	1	3359.00	1	0	36
8	0	28	3429.00	1	1	3389.00	1	0	36
9	0	28	3488.00	3	0	3439.00	2	1	37
10	0	29	3502.00	3	0	3455.00	3	1	37
11	1	29	3668.00	2	0	3550.00	1	1	37
12	1	30	3713.00	2	0	3574.00	1	1	38
13	0	31	3737.00	1	0	3672.00	1	0	38
14	0	31	3804.00	2	0	3688.00	1	0	38
15	1	32	3827.00	1	0	3672.00	2	3	39
16	1	32	3867.00	1	0	3616.00	1	0	39
17	0	32	3899.00	1	0	3616.00	0	0	39
18	0	33	4113.00	4	0	3818.00	1	0	40
19	0	33	4172.00	1	0	3872.00	1	0	40
20	0	33	4171.00	1	0	3842.00	3	1	41
21	0	34	4372.00	2	0	3872.00	1	0	41
22	0	34	4373.00	1	0	3856.00	2	1	42

NOTE: IF POSSIBLE, USE SYMBOL COUNTS APPROXIMATELY + 00 OCCURRENCES

I → I → ... I → ... I → ... I
40 80 120 160 200

	1658.527	STD. ERP	131.504	MEDIAN	2240.000
MEAN	10.000	STD. DEV.	1087.067	VARIANCE	6693008.18
STDEV	-1.141	S & KURT	1.951	SKEWNESS	.576
MAX	124	RANGE	6040.000	MINIMUM	10.000
MIN	0.000	SUM	1032720.00		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	10,000	25.00	50,000	33.30	600,000
50.00	210,000	66.70	2773,333	75.00	3250,000

MISSING 04353

Census tract information

POP TRACT POPULATION

VAL 12	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
122.00	66	17	17	3123.00	1	0	44	3145.00	2	1	72
123.00	18	5	22	3162.00	1	0	44	3235.00	3	1	73
124.00	1	0	22	3244.00	3	1	45	3259.00	1	0	73
125.00	15	4	26	3293.00	5	1	46	3302.00	1	0	73
1239.00	1	0	26	3387.00	9	1	47	3303.00	4	1	74
1248.00	1	0	26	3394.00	1	0	48	3342.00	3	1	75
1254.00	3	1	28	3399.00	2	1	48	3378.00	1	0	75
1267.00	1	0	28	3400.00	4	1	49	3369.00	1	0	75
1276.00	1	0	28	3429.00	1	0	49	3396.00	2	1	76
1246.00	1	0	28	3488.00	3	1	50	3439.00	3	1	77
1249.00	1	0	29	3552.00	8	2	52	3525.00	1	0	77
1248.00	2	1	29	3668.00	2	1	53	3590.00	1	0	77
1254.00	1	1	30	3710.00	1	0	53	3747.00	3	1	78
1244.00	1	0	30	3727.00	1	0	53	3872.00	1	0	78
1234.00	1	0	30	3809.00	2	1	54	3888.00	1	0	78
1254.00	9	1	32	3827.00	11	5	57	6072.00	2	1	79
1256.00	2	1	32	3967.00	1	0	57	6116.00	3	1	80
2032.00	1	0	32	3999.00	1	0	57	6218.00	1	0	80
2014.00	1	0	33	4117.00	4	1	58	6372.00	1	0	80
2018.00	1	0	33	4122.00	1	0	58	6424.00	3	1	81
2157.00	1	0	33	4121.00	2	1	59	6472.00	1	0	81
2144.00	4	1	34	4292.00	1	0	59	6656.00	2	1	82
2140.00	1	0	34	4276.00	1	0	59	6714.00	16	4	86

POINT	INTERPOINT	ONE SYMBOL EQUALS APPROXIMATELY 2.00 OCCURRENCES
1.00	496	*****
1.10	1158	*****
1.20	1220	****
1.30	2482	****
1.40	1144	****
1.50	1806	****
1.60	1468	****
1.70	1450	****
1.80	1772	****
1.90	1454	****
2.00	1116	****
2.10	1778	****
2.20	1440	+
2.30	2102	+
2.40	1164	+
2.50	10426	+
2.60	11059	+
2.70	11730	+
2.80	12412	+
2.90	11074	+
3.00	12755	+

0 20 40 60 80 100
HISTOGRAM FREQUENCY

MEAN	1777.659	STD. ERR	149.655	MEDIAN	2498.000
STD. DEV.	472.200	STD. DEV.	294.1245	VARIANCE	8668596.77
S. E. KURT.	1.228	S. E. KURT.	1.225	SKEWNESS	.679
RANGE	1254	RANGE	10889.000	MINIMUM	172.000
SUM	17310.200	SUM	1461554.00		

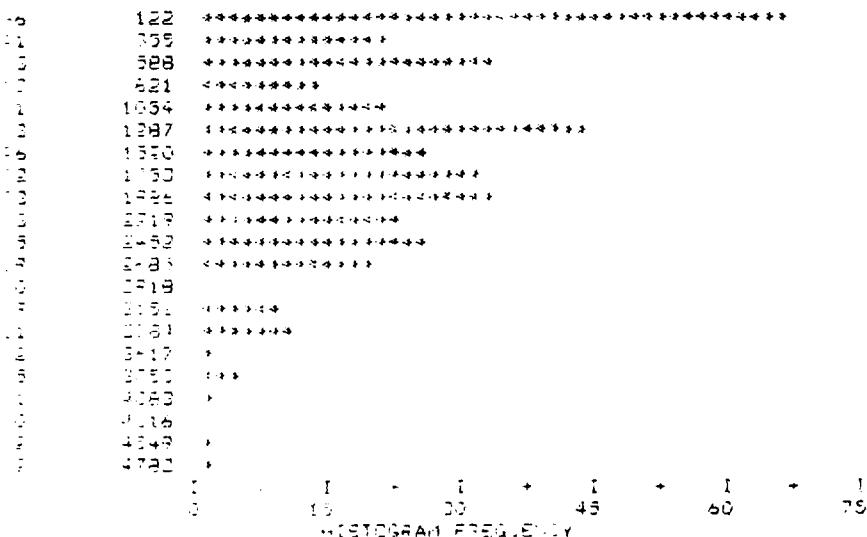
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
0.00	112.000	25.00	181.000	33.30	2214.000
1.00	3412.000	55.70	4903.512	75.00	5359.000
2.00	77.5400				

1.000 1.500 2.000 MISSING VALUES 0

TOTAL DWELLING UNITS IN TRACT

BIN	BIN			BIN			BIN				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
122	17	17	17.00	1217.00	1	43	43	1562.00	9	4	4
355	5	22	22.00	1278.00	1	44	44	1578.00	1	2	2
588	1	0	23	1281.00	1	45	45	1589.00	4	1	1
821	1	0	22	1282.00	1	46	47	1591.00	1	1	1
1054	0	0	22	1301.00	1	47	47	1596.00	4	1	1
1287	0	0	23	1307.00	1	48	48	2007.00	2	0	0
1520	4	4	27	1311.00	1	49	49	2122.00	1	0	0
1753	0	0	27	1356.00	1	50	50	2129.00	1	0	0
1986	1	1	29	1374.00	1	51	51	2131.00	2	1	1
2219	0	0	28	1391.00	1	52	52	2142.00	1	0	0
2452	1	1	29	1415.00	1	53	53	2181.00	1	0	0
2685	1	1	29	1428.00	1	54	54	2189.00	2	1	1
2918	1	1	29	1454.00	1	55	55	2258.00	1	0	0
3151	0	0	29	1457.00	1	56	56	2261.00	1	0	0
3384	0	0	29	1479.00	1	57	57	2274.00	1	0	0
3617	0	0	29	1502.00	1	58	58	2319.00	1	0	0
3850	1	1	34	1518.00	1	59	59	2474.00	1	0	0
4083	1	1	34	1528.00	1	60	60	2486.00	1	0	0
4316	0	0	34	1535.00	1	61	61	2499.00	1	0	0
4549	1	1	34	1563.00	1	62	62	2528.00	1	0	0
4782	1	1	35	1574.00	1	63	63	2558.00	1	0	0
5015	1	1	35	1578.00	1	64	64	2578.00	1	0	0
5248	1	1	35	1613.00	1	65	65	2599.00	1	0	0
5481	2	2	35	1632.00	1	66	66	2613.00	1	0	0
5714	2	2	35	1659.00	1	67	67	2724.00	1	0	0
5947	1	1	35	1672.00	1	68	68	2754.00	1	0	0
6180	1	1	37	1716.00	1	69	69	2759.00	1	0	0
6413	1	1	37	1750.00	1	70	70	2800.00	1	0	0
6646	1	1	37	1757.00	1	71	71	7112.00	1	0	0
6879	1	1	38	1769.00	1	72	72	7189.00	1	0	0
7112	0	0	38	1807.00	1	73	73	7218.00	1	0	0
7345	1	1	39	1815.00	1	74	74	7305.00	1	0	0
7578	1	1	40	1851.00	1	75	75	7457.00	1	0	0
7811	1	1	40	1853.00	1	76	76	7558.00	1	0	0
8044	1	1	41	1854.00	1	77	77	7748.00	1	0	0
8277	1	1	41	1875.00	1	78	78	7757.00	1	0	0
8510	1	1	42	1885.00	1	79	79	7841.00	1	0	0
8743	1	1	42	1922.00	1	80	80	7905.00	1	0	0
8976	0	0	43	1936.00	1	81	81	7957.00	2	1	1
9209	0	0	43	1951.00	1	82	82	7957.00	2	1	1

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 150 OCCURRENCES



MEAN	142773	STD ERR	54.085	MEDIAN	1374.000
STD	5,010	STD DEV	1053.552	VARIANCE	1132028.86
SKEWNESS	-0.13	SKEWNESS	-0.055	SKEWNESS	4.77
BIASNESS	-0.24	RANGE	4891.000	MINIMUM	6.000
STDEV	5,010	STDEV	514435.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
25.00	251.000	50.00	917.000		
75.00	1514.152	75.00	2129.000		

110 1 883 307 MISSING VALUES 0

11. UNIT STRUCTURES IN TRACT

STRUCTURE	CUM			CUM			CUM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
1	1	0.00	0.00	580.00	1	0	0.00	1122.00	4	1	0.00
1	0	26	5.80	581.00	11	3	17	1131.00	2	1	7.1
1	1	27	5.90	590.00	1	0	17	1170.00	4	1	22
1	0	27	704.00	5	1	19	1174.00	1	0	72	
1	3	27	705.00	2	1	19	1191.00	2	1	72	
1	0	28	706.00	1	0	49	1223.00	9	2	75	
1	4	1	28	716.00	2	1	50	1258.00	0	1	75
1	2	0	29	723.00	1	0	50	1269.00	2	1	16
1	1	0	29	725.00	1	0	51	1274.00	1	0	76
1	1	0	30	737.00	2	1	51	1284.00	2	1	77
1	1	0	31	738.00	1	0	52	1301.00	1	0	77
1	1	0	30	739.00	4	1	53	1330.00	9	2	79
1	1	1	31	774.00	1	0	54	1342.00	1	0	80
1	0	1	31	783.00	1	0	54	1343.00	2	1	80
1	0	1	32	822.00	1	0	54	1396.00	2	1	81
1	1	0	32	823.00	1	0	55	1420.00	1	0	81
1	1	1	32	830.00	1	0	55	1436.00	2	1	81
1	1	1	34	836.00	1	0	56	1475.00	1	0	82
1	1	1	35	853.00	1	0	57	1495.00	16	4	86
1	0	35	857.00	1	0	57	1513.00	1	0	86	
1	0	35	869.00	1	0	57	1614.00	2	1	87	
1	0	36	889.00	1	0	58	1620.00	1	0	87	
1	0	36	891.00	1	0	58	1653.00	3	1	88	
1	0	36	879.00	1	0	58	1709.00	1	0	88	
1	2	0	36	881.00	4	1	59	1711.00	3	1	89
1	2	0	38	884.00	1	0	59	1734.00	1	0	89
1	0	38	873.00	1	0	60	1856.00	3	1	90	
1	1	0	38	735.00	2	1	60	2174.00	4	1	91
1	0	39	751.00	1	0	61	2226.00	3	1	93	
1	0	40	962.00	3	1	62	2312.00	1	0	93	
1	1	0	40	963.00	1	0	64	2354.00	3	1	94
1	1	1	41	1011.00	1	0	65	2440.00	3	1	95
1	1	0	41	1018.00	1	0	66	2506.00	4	1	96
1	1	1	42	1022.00	1	0	67	2535.00	4	1	97
1	1	1	43	1029.00	1	0	67	2704.00	3	1	97
1	0	43	1057.00	1	0	67	2826.00	3	1	99	
1	0	44	1098.00	1	0	68	3524.00	6	1	100	
1	0	44	1116.00	1	0	69					

478 AREA 3 UILT RESIDENTIAL

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卷之三

THE BOSTONIAN 1

卷之三

0	100
1	80
2	70
3	60
4	50
5	40
6	30
7	20
8	10
9	0

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCE

A histogram showing the distribution of Frequency (Y-axis, 0 to 15) versus I (X-axis, 0 to 200). The distribution is unimodal and centered around $I = 100$, with the highest frequency occurring at $I = 100$ (approximately 14). The distribution is slightly skewed to the right.

I	Frequency
0	1
10	1
20	1
30	1
40	1
50	1
60	1
70	1
80	1
90	1
100	14
110	1
120	1
130	1
140	1
150	1
160	1
170	1
180	1
190	1
200	1

	1 292	STD ERR	118	MEDIAN	1 299
	0.21	STD DEV	2 321	VARIANCE	5 388
	4 400	S E KURT	1 595	SKEWNESS	1 874
	124	RANGE	12 258	MINIMUM	0 0
	12 438	SUM	771 662		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
11-30	321	25-60	321	33-50	426
50-70	1,279	55-70	2,122	75-90	2,748
70-100	3,938				
94-100 CASES	387	MISSING CASES	0		

1984 BUILT NON-RESIDENTIAL

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

MIDPOINT	COUNT
20	139
40	98
60	38
80	92
100	5
120	69
140	4
160	79
180	50
200	25
220	0
240	0
260	0
280	0
300	0
320	0
340	0
360	0
380	0
400	0
420	0
440	0
460	0
480	0
500	0
520	0
540	0
560	0
580	0
600	0
620	0
640	0
660	0
680	0
700	0
720	0
740	0
760	0
780	0
800	0
820	0
840	0
860	0
880	0
900	0
920	0
940	0
960	0
980	0
1000	0
1020	0
1040	0
1060	0
1080	0
1100	0
1120	0
1140	0
1160	0
1180	0
1200	0
1220	0
1240	0
1260	0
1280	0
1300	0
1320	0
1340	0
1360	0
1380	0
1400	0
1420	0
1440	0
1460	0
1480	0
1500	0
1520	0
1540	0
1560	0
1580	0
1600	0
1620	0
1640	0
1660	0
1680	0
1700	0
1720	0
1740	0
1760	0
1780	0
1800	0
1820	0
1840	0
1860	0
1880	0
1900	0
1920	0
1940	0
1960	0
1980	0
2000	0

MEAN	1 569	STD ERR	11.0	MEDIAN	914
SD	3 631	STD DEV	31.8	VARIANCE	3 372
SKEWNESS	4 550	S 2 PLRT	1 445	SKENNESS	2 171
BIAS	124	RANGE	10 554	MINIMUM	0 0
COV	10 664	SUM	157 014		

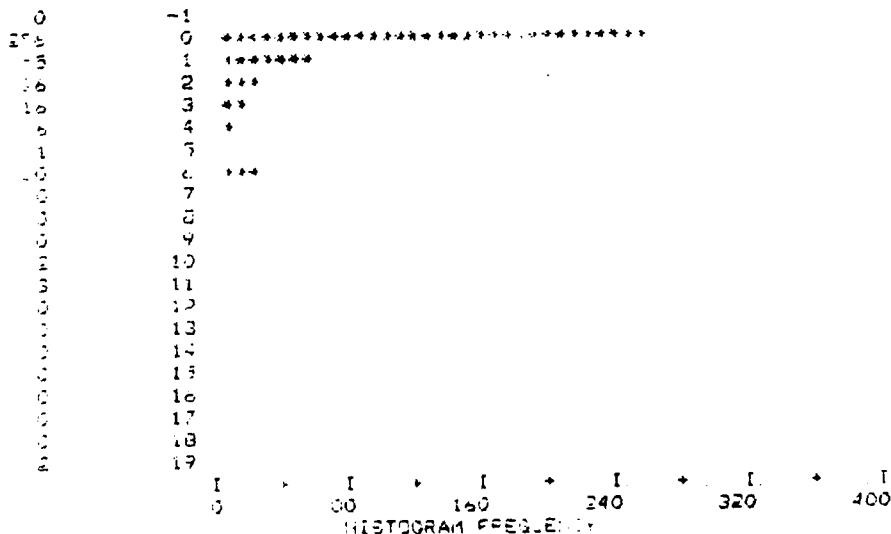
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
1 00	172	25 00	482	33 30	597
50 00	914	50 70	2 010	75 00	3 078
99 00	3 631				

MISSING CASES 0

473 AREA OPEN WITH BUILDINGS

CLASS	CUM			CUM			CUM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	
1	146	43	43	27	3	1	59	1 22	4	1	19
2	3	1	44	29	1	0	59	1 27	3	1	80
3	1	0	44	31	4	1	60	1 29	1	0	80
4	5	1	45	38	2	1	61	1 39	1	0	80
5	3	2	47	39	1	0	61	1 72	1	0	81
6	1	0	47	43	3	1	62	1 72	1	0	81
7	3	1	48	43	3	1	63	1 70	8	2	83
8	1	0	48	44	1	0	63	1 96	1	0	83
9	5	1	49	44	2	1	64	1 97	3	1	84
10	1	0	50	45	1	0	64	2 13	11	3	87
11	1	0	50	45	1	0	64	2 18	1	0	87
12	2	1	50	47	5	1	66	2 61	3	1	88
13	3	1	51	48	1	0	66	2 63	5	1	89
14	1	0	51	54	1	0	66	2 77	1	0	89
15	1	0	52	54	1	0	67	2 83	5	1	91
16	1	0	52	53	4	1	68	2 88	2	1	91
17	5	1	53	67	1	0	68	3 81	2	1	92
18	2	1	54	69	2	1	68	4 04	4	1	93
19	2	1	54	71	2	1	69	4 84	1	0	93
20	1	0	55	72	2	1	75	5 98	4	1	94
21	1	0	55	73	2	1	75	6 46	16	4	98
22	1	0	55	65	3	1	76	9 83	2	1	99
23	3	1	56	71	2	1	76	10 97	3	1	99
24	4	1	57	1 00	2	1	77	18 85	2	1	100
25	1	0	57	1 14	3	1	78				
26	5	1	58	1 19	1	0	78				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8 00 OCCURRENCES



1.0	1.7	STD. ERR.	0.7	0.0444	1.95
1.0	1.9	STD. DEV.	0.718	141.144CF	5.275
1.0	1.5	STD. MVR	0.553	SHARPNESS	3.000
1.0	0.84	RANGE	0.646	CONTRUM	0.0
1.0	0.846	SD	0.557		

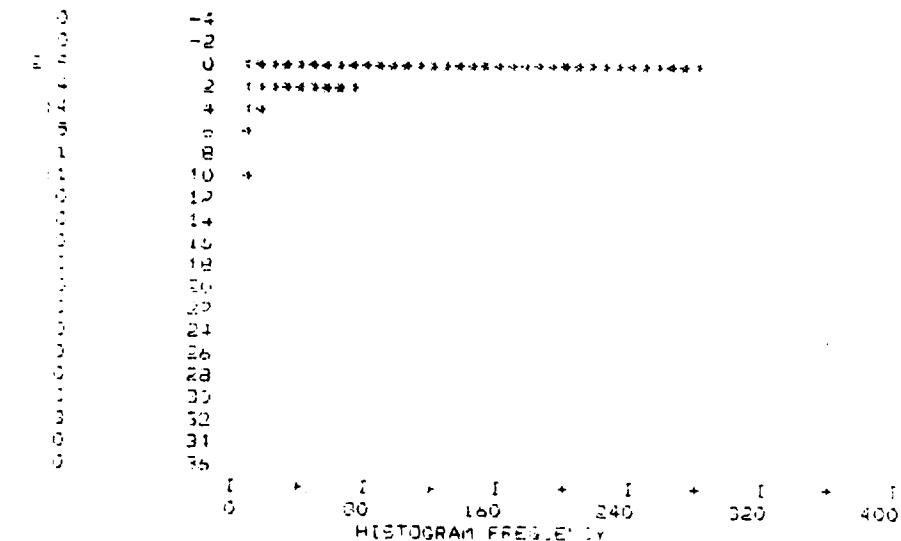
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
1.0	23.00	0.0	0.00	0.0	0.00
0.95	26.79	0.5	5.54	0.1	0.762
0.90	21.80				

1.000 1.000 357 MISSING CASES

44EA OPEN WITHOUT BLINDS

CLASS	CUM			CLASS	CUM			CLASS	CUM		
	FREQ	PCT	PCT		VALUE	FREQ	PCT		PCT	VALUE	FREQ
1.0	113	46	46	48	2	1	51	1.64	3	1	77
1.0	0	46		49	1	0	51	1.64	12	1	78
1.0	3	1	47	50	1	53		1.67	4	1	79
1.0	0	47		52	3	1	53	1.67	7	2	81
1.0	1	0	48	53	1	54		1.67	5	1	82
1.0	2	0	50	56	1	55		1.91	1	0	82
1.0	4	1	51	59	2	0	55	1.91	0	1	83
1.0	1	0	51	60	1	56		2.01	0	1	83
1.0	3	1	52	62	1	57		2.01	4	1	84
1.0	1	0	52	63	1	58		2.01	1	3	87
1.0	3	1	53	64	1	59		2.01	1	1	88
1.0	2	1	53	67	1	60		2.01	1	0	88
1.0	1	0	53	69	1	61		2.01	5	1	90
1.0	1	0	54	70	1	62		2.01	5	1	91
1.0	1	1	54	70	1	63		2.01	1	0	91
1.0	1	0	55	71	1	64		2.01	3	2	93
1.0	3	1	55	74	1	65		2.01	1	0	94
1.0	1	0	56	75	1	66		2.01	2	1	94
1.0	0	0	56	76	1	67		2.01	3	1	95
1.0	2	1	56	77	1	68		2.01	4	1	96
1.0	1	0	57	78	1	69		2.01	1	0	96
1.0	1	1	58	79	1	70		2.01	1	0	96
1.0	1	0	59	81	1	71		2.01	5	1	97
1.0	1	0	60	84	1	72		2.01	1	0	97
1.0	0	0	60	85	1	73		2.01	0	1	98
1.0	1	1	60	86	1	74		2.01	1	1	98
1.0	0	0	60	87	1	75		2.01	10	15	100
1.0	1	0	60	88	1	76		2.01	10	63	100
1.0	0	1	61	89	1	77		2.01	3	1	100

COUNT MTOPPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES



MEAN	3.425	STD. DEV.	17.9	MEDIAN	3.07
MODE	3.0	STD. DEV.	3.406	VARIANCE	11.600
KURTOSIS	55.43	KURT.	1.995	SKEWNESS	8.650
S.E. MEAN	1.24	RANGE	32.600	MINIMUM	0.0
MAXIMUM	32.620	SUM	101.809		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
0.00	0.0	25.00	6.1	50.00	6.0
50.00	9.07	66.70	12.1	75.00	14.81
99.00	2.506				

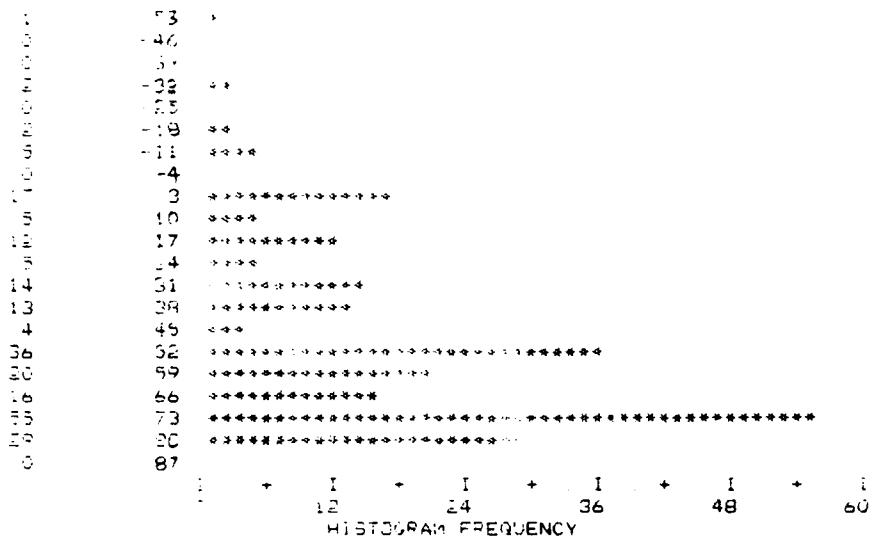
MEAN 3.425 STD. DEV. 17.9 VARIANCE 11.600 SKEWNESS 8.650 MINIMUM 0.0

General building descriptions

107 APPROX AGE OF STRUCTURE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	-50	1	.4	.4	.4
	-30	2	.8	.8	1.3
	-20	2	.8	.8	2.1
	-12	1	.4	.4	2.5
	-10	4	1.7	1.7	4.2
	0	15	6.4	6.4	10.6
	4	1	.4	.4	11.0
	5	1	.4	.4	11.4
	10	5	2.1	2.1	13.6
	15	2	.8	.8	14.4
	20	10	4.2	4.2	18.6
	25	5	2.1	2.1	20.8
	30	13	5.5	5.5	26.3
	31	1	.4	.4	26.7
	35	2	.8	.8	27.5
	40	11	4.7	4.7	32.2
	45	3	1.3	1.3	33.5
	48	1	.4	.4	33.9
	50	27	11.4	11.4	45.3
	55	9	3.8	3.8	49.2
	58	1	.4	.4	49.6
	59	5	1.3	1.3	50.8
	60	15	6.8	6.8	57.6
	63	1	.4	.4	58.1
	65	15	5.4	5.4	64.4
	70	31	13.1	13.1	77.5
	74	1	.4	.4	78.0
	75	23	9.7	9.7	87.7
	77	1	.4	.4	88.1
	78	3	1.3	1.3	89.4
	79	1	.4	.4	89.8
	80	14	5.9	5.9	95.8
	82	7	3.0	3.0	98.7
	83	3	1.3	1.3	100.0
	TOTAL	236	100.0	100.0	

EWIF EXPOSED WALL IN FOOTPRINT ONE VARIABLE ANALYSIS APPROXIMATELY 236 OCCURRENCES



MEAN	49.002	STD ERR	1.613	MEDIAN	59.000
MODE	50.000	STD DEV	17.644	VARIANCE	775.305
KURTOSIS	2.99	S E KURT	1.592	SKWNESS	-0.998
S E SKW	1.58	RANGE	133.000	MINIMUM	-50.000
MAXIMUM	83.000	SUM	11706.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	30.000	33.30	45.000
50.00	59.000	50.70	70.000	75.00	70.000
90.00	80.000				
VALID CASES	236	MISSING CASES	0		

EWIF EXPOSED WALL IN FOOTPRINT

VALUE	FREQ	CUM PCT	PCT	VALUE	FREQ	CUM PCT	PCT	VALUE	FREQ	CUM PCT	PCT
32	1	0	0	172	2	1	42	300	5	2	69
60	1	0	1	176	2	1	42	320	1	0	70
80	1	0	1	180	2	3	45	370	2	1	71
90	1	0	2	182	1	0	46	380	1	0	71
100	2	1	3	186	3	1	47	400	8	3	75
108	1	0	3	188	1	0	47	410	1	0	75
110	5	2	5	190	5	2	50	420	1	0	75
120	16	7	12	192	2	1	50	430	2	1	76
122	1	0	12	196	3	1	52	440	1	0	77
130	5	2	14	200	10	4	56	450	2	1	78
132	4	2	16	202	3	1	57	480	1	0	78
134	1	0	17	206	3	1	58	500	3	1	79
140	15	6	23	208	1	0	59	520	2	1	80
142	1	0	23	210	2	1	60	540	1	0	81
144	3	1	25	220	3	1	61	560	1	0	81
148	5	2	27	223	1	0	61	575	1	0	81
150	5	2	29	240	3	1	63	600	6	3	84
152	5	2	31	244	1	0	63	692	1	0	84
154	1	0	31	250	1	0	64	700	3	1	86
156	4	2	33	260	0	3	66	800	4	2	87
160	16	7	40	280	2	1	67	900	5	2	89
170	2	1	41	284	1	0	67	999	25	11	100

MEAN	335.453	STD. ERR	18.879	MEDIAN	192.000
MODE	999.000	STD. DEV	290.028	VARIANCE	84116.291
KURTOSIS	563	S.E. KURT	1.992	SKEWNESS	1.414
S.E. SKEW	158	RANGE	967.000	MINIMUM	32.000
MAXIMUM	999.000	SUM	79167.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	120.000	25.00	148.000	33.30	159.684
50.00	192.000	66.70	280.316	75.00	417.500
90.00	999.000				
VALID CASES	236	MISSING CASES	0		

HT AVERAGE WALL HEIGHT

VALUE	LABEL	VALID PERCENT	CUM PERCENT
PERCENT	VALID PERCENT	CUM PERCENT	
8		4	4
9		4	8
10		8	17
12		3.0	47
14		3.0	76
15		6.4	14.0
16		9.3	23.3
17		8	24.2
18		1.7	25.8
19		4	26.3
20		16.5	42.8
22		1.3	44.1
24		1.3	45.3
25		16.5	61.9
26		3.0	64.8
27		8	65.7
28		2.1	67.8
30		13.6	81.4
32		1.3	82.6
33		4	83.1
35		3.4	86.4
36		1.3	87.7
40		2.5	90.3
41		4	90.7

50	5	2 1	2 1	92 8
55	7	3 0	3 0	95 8
70	4	1 7	1 7	97 5
80	2	8	8	98 3
100	3	1 3	1 3	99 6
160	1	4	4	100 0
TOTAL		236	100 0	100 0

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 2.00 OCCURRENCES

0	4
33	12
71	20
68	28
15	36
7	44
5	52
7	60
4	68
0	76
0	84
92	*
3	100
0	108
0	116
0	124
0	132
0	140
0	148
0	156
1	164

I...+ I...+ I...+ I...+ I...+ I...+ I
0 20 40 60 80 100
HISTOGRAM FREQUENCY

MEAN	27.619	STD ERR	1.130	MEDIAN	25.000
MODE	20.000	STD DEV	17.363	VARIANCE	301.462
KURTOSIS	17.553	S E KURT	1.992	SKEWNESS	3.447
S E SKEW	158	RANGE	152.000	MINIMUM	8.000
MAXIMUM	160.000	SUM	518.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	15.000	25.00	18.000	33.30	20.000
50.00	25.000	66.70	28.000	75.00	30.000
90.00	40.300				

VALID CASES 236 MISSING CASES 0

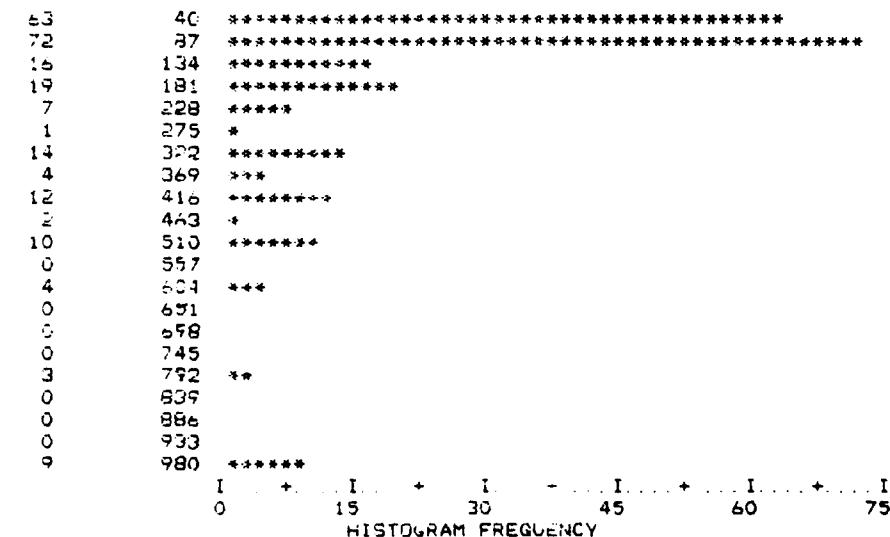
NOTE: LIST SIZE 5.0E ONE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	20	1	.4	.4	.4
	24	1	.4	.4	.8
	25	3	1.3	1.3	2.1
	30	1	.8	.8	3.0
	40	4	1.7	1.7	4.7
	45	12	4.2	4.2	8.9
	50	25	10.6	10.6	19.5
	55	1	.4	.4	19.9
	60	10	6.8	6.8	26.7
	65	1	.4	.4	27.1
	70	11	4.7	4.7	31.8
	75	10	4.2	4.2	36.0
	80	14	5.9	5.9	41.9

85	1	.4	.4	42.4
90	0	.25	.25	44.9
100	26	11.0	11.0	55.9
110	3	1.3	1.3	57.2
120	5	2.1	2.1	59.3
140	1	.4	.4	59.7
150	10	4.2	4.2	64.0
160	1	.4	.4	64.4
185	1	.4	.4	64.8
200	17	7.2	7.2	72.0
220	1	.4	.4	72.5
223	1	.4	.4	72.9
230	1	.4	.4	73.3
250	4	1.7	1.7	75.0
270	1	.4	.4	75.4
300	14	5.9	5.9	81.4
350	4	1.7	1.7	83.1
400	10	4.2	4.2	87.3
420	2	.8	.8	88.1
450	2	.8	.8	89.0
500	10	4.2	4.2	93.2
600	4	1.7	1.7	94.9
800	3	1.3	1.3	96.2
GREATER THAN 999	999	3.8	3.8	100.0

	TOTAL	236	100.0	100.0

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES



MEAN	810.733	STD EPR	14.513	MEDIAN	100.000
MODE	100.000	STD DEV	222.953	VARIANCE	49707.924
KURTOSIS	4.563	S E KURT	1.992	SKEWNESS	2.155
S E SKEN	1.98	RANGE	979.000	MINIMUM	20.000
MAXIMUM	999.000	SUM	47373.000		

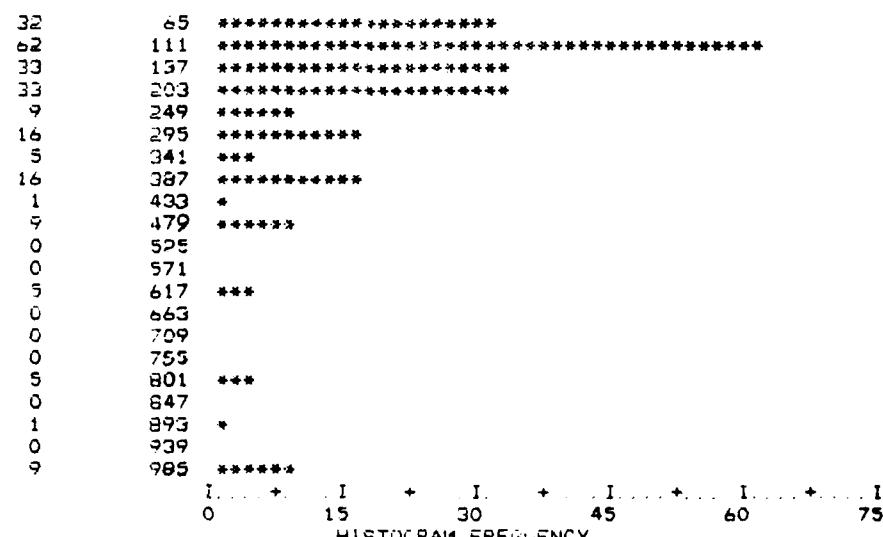
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	50.000	25.00	60.000	33.30	75.000
50.00	100.000	66.70	200.000	75.00	265.000
90.00	500.000				

VALID CASES 236 MISSING CASES 0

LOT2 LOT SIZE SIDE TWO

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	50	7	3.0	3.0	3.0
	60	4	1.7	1.7	4.7
	70	4	1.7	1.7	6.4
	75	3	1.3	1.3	7.6
	80	14	5.9	5.9	13.6
	90	12	5.1	5.1	18.6
	95	1	.4	.4	19.1
	100	32	13.6	13.6	32.6
	110	1	.4	.4	33.1
	120	15	6.4	6.4	39.4
	125	1	.4	.4	39.8
	130	27	11.4	11.4	51.3
	160	2	.8	.8	52.1
	175	4	1.7	1.7	53.8
	180	2	.8	.8	54.7
	200	29	12.3	12.3	66.9
	208	1	.4	.4	67.4
	223	1	.4	.4	67.8
	250	9	3.8	3.8	71.6
	300	16	6.8	6.8	78.4
	350	5	2.1	2.1	80.5
	400	16	6.8	6.8	87.3
	420	1	.4	.4	87.7
	500	9	3.8	3.8	91.5
	600	5	2.1	2.1	93.6
	800	5	2.1	2.1	95.8
	900	1	.4	.4	96.2
GREATER THAN 999	999	9	3.8	3.8	100.0
		-----	-----	-----	-----
		TOTAL	236	100.0	100.0

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES

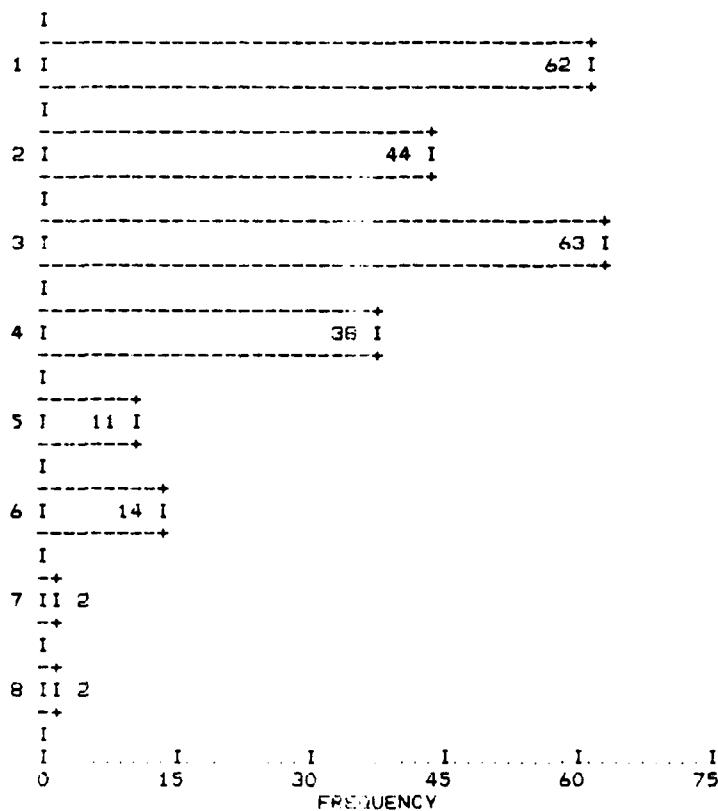


MEAN	242.784	STD ERR	14.343	MEDIAN	150.000
MODE	100.000	STD DEV	220.343	VARIANCE	48551.225
KURTOSIS	4.000	S E KURT	1.992	SKEWNESS	2.059
S E SKEW	158	RANGE	949.000	MINIMUM	50.000
MAXIMUM	999.000	SUM	57297.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	80.000	25.00	100.000	33.30	119.210
50.00	150.000	55.70	200.632	75.00	300.000
90.00	500.000				
VALID CASES	216	MISSING CASES	0		

NBUILD NUM ADDITIONAL BUILD IN FOOT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1	62	26.3	26.3	26.3	26.3
2	44	18.6	18.6	44.9	44.9
3	63	26.7	26.7	71.6	71.6
4	38	16.1	16.1	87.7	87.7
5	11	4.7	4.7	92.4	92.4
6	14	5.9	5.9	98.3	98.3
7	2	.8	.8	99.2	99.2
8	2	.8	.8	100.0	100.0
TOTAL	236	100.0	100.0		



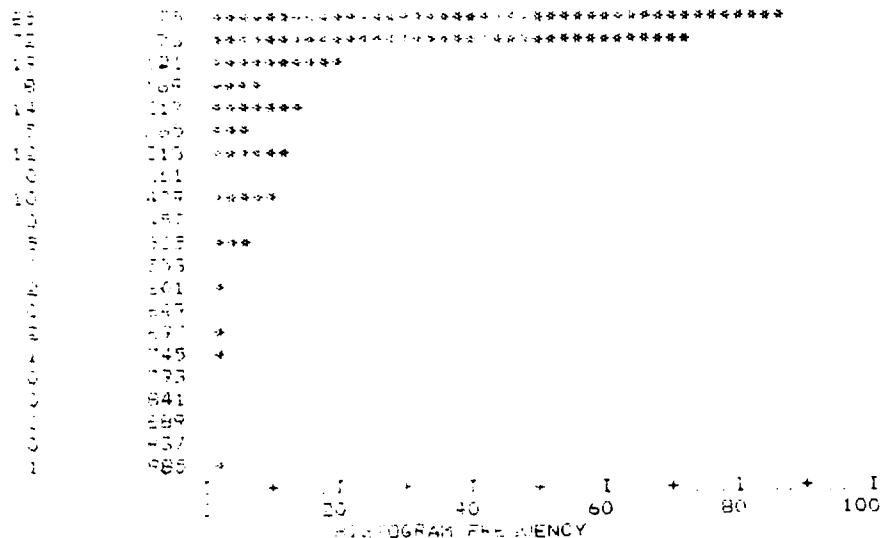
MEAN	2.797	STD ERR	102	MEDIAN	3.000
MODE	3.000	STD DEV	1.560	VARIANCE	2.435
KURTOSIS	324	S E KURT	1.992	SKEWNESS	.783
S E SKEW	158	RANGE	7.000	MINIMUM	1.000
MAXIMUM	8.000	SUM	560.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
50.00	3.000	56.70	3.000	75.00	4.000
90.00	5.000				
VALID CASES	236	MISSING CASES	0		

SIDE1 SIDE ONE OF BLDG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	10	1	.4	.4	.4
	12	2	.8	.8	1.3
	15	4	1.7	1.7	3.0
	18	2	.8	.8	3.8
	20	3	1.3	1.3	5.1
	24	2	.8	.8	5.9
	25	1	.4	.4	6.4
	30	28	11.9	11.9	18.2
	35	3	1.3	1.3	19.5
	36	14	5.9	5.9	25.4
	40	20	8.5	8.5	33.9
	42	1	.4	.4	34.3
	45	4	1.7	1.7	36.0
	50	26	11.0	11.0	47.0
	52	2	.8	.8	47.9
	60	13	5.5	5.5	53.4
	65	4	1.7	1.7	55.1
	66	1	.4	.4	55.5
	70	7	3.0	3.0	58.5
	75	6	3.4	3.4	61.9
	80	9	3.8	3.8	65.7
	90	1	.4	.4	66.1
	96	1	.4	.4	66.5
	100	14	5.9	5.9	72.5
	120	2	.8	.8	73.3
	130	2	.8	.8	74.2
	140	1	.4	.4	74.6
	150	5	2.1	2.1	76.7
	175	2	.8	.8	77.5
	180	1	.4	.4	78.0
	200	14	5.9	5.9	83.9
	250	5	2.1	2.1	86.0
	300	12	5.1	5.1	91.1
	400	10	4.2	4.2	95.3
	500	5	2.1	2.1	97.5
	600	2	.8	.8	98.3
	700	2	.8	.8	99.2
	740	1	.4	.4	99.6
	999	1	.4	.4	100.0
TOTAL	236	100.0	100.0		

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 200 OCCURRENCES



MEAN	129.169	STD ERR	8.764	MEDIAN	60.000
MODE	20.000	STD DEV	149.987	VARIANCE	22499.213
ANALYSIS	7.548	S E KURT	1.972	SKEWNESS	2.528
S E SKEW	158	RANGE	989.010	MINIMUM	10.000
MAXIMUM	149.000	SUM	25,441.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	30.000	25.00	35.000	33.30	40.000
50.00	60.000	66.70	100.000	75.00	150.000
90.00	200.000				
VALID CASES	EDS	MISSING CASES	0		

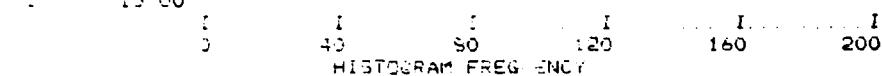
SIDE2 SIDE TWO OF SLDG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	6	1	.4	.4	.4
	12	1	.4	.4	.6
	20	2	.8	.8	1.7
	24	15	6.4	6.4	8.1
	25	1	3.0	3.0	11.0
	26	12	5.1	5.1	16.1
	27	1	4	4	16.5
	28	12	5.1	5.1	21.6
	30	42	17.8	17.8	39.4
	33	1	.4	.4	39.8
	34	1	.4	.4	40.3
	35	1	.4	.4	40.7
	36	6	2.5	2.5	43.2
	38	1	.4	.4	43.6
	40	17	7.2	7.2	50.8
	42	2	.8	.8	51.7
	45	4	1.7	1.7	53.4
	50	12	5.1	5.1	58.5
	55	1	.4	.4	58.9
	60	7	3.0	3.0	61.9
	65	1	.4	.4	62.3
	70	6	2.5	2.5	64.8
	75	1	.4	.4	65.3
	80	6	2.5	2.5	67.8

TYPE **STRUCTURE** **TYPE** **IMAGE**

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 UNIT STRUCTURE	1	115	48.7	48.7	48.7
2 UNITS	2	4	1.7	1.7	50.4
3 TO 4 UNITS	3	5	2.1	2.1	52.5
5 TO 9 UNITS	4	8	3.5	3.5	53.4
10 TO 19 UNITS	5	1	1.3	1.3	54.7
20 TO 49 UNITS	6	4	4.4	4.4	55.1
OFFICE BUILDING	7	4	4.4	4.4	55.5
COMMERCIAL BUILD	8	22	39.0	39.0	94.5
INDUSTRIAL	9	2	8.8	8.8	95.3
EDUCATIONAL	10	3	2.5	2.5	97.9
RELIGIOUS	11	3	1.3	1.3	99.2
HEALTH BUILDING	12	1	4.4	4.4	99.6
OTHER	13	1	4.4	4.4	100.0
<hr/>					
	TOTAL	235	100.0	100.0	

CONST VALUE ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



MEAN	4.886	STD. ERR.	.267	MEDIAN	2.000
MODE	1.000	STD. DEV.	4.102	VARIANCE	16.825
KURTOSIS	-1.724	S.E. KURT.	1.992	SKEWNESS	.239
S.E. SKEN.	.158	RANGE	14.000	MINIMUM	1.000
MAXIMUM	15.000	SUM	1152.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1,000	25.00	1,000	33.30	1,000
50.00	2,000	56.70	9,000	75.00	9,000
90.00	9,000				
VALID CASES	236	MISSING CASES	0		

Spatial areas of building material types

APAINT AREA PAINTED SURFACE

VALUE	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
0 0	18	8	8	640 00	1	0	27	1488 21	1	0	47
15 61	1	0	8	649 35	1	0	28	1509 86	1	0	47
23 39	1	0	9	675 81	1	0	28	1526 96	1	0	47
46 51	1	0	9	677 03	1	0	28	1585 61	1	0	48
63 00	1	0	9	677 49	1	0	29	1632 00	1	0	48
69 45	1	0	10	759 72	1	0	29	1680 00	1	0	49
77 55	1	0	10	764 85	1	0	30	1718 36	1	0	49
86 15	1	0	11	770 00	1	0	30	1737 84	1	0	50
88 59	1	0	11	800 90	1	0	31	1835 45	1	0	50
97 77	1	0	11	805 57	1	0	31	1963 82	1	0	50
120 17	1	0	12	812 71	1	0	31	1971 71	1	0	51
124 39	1	0	12	879 86	1	0	32	1978 32	1	0	51
129 05	1	0	13	885 58	1	0	32	2016 00	1	0	52
156 27	1	0	13	889 25	1	0	33	2073 19	1	0	52
212 17	1	0	14	890 18	1	0	33	2099 42	1	0	53
248 82	1	0	14	892 46	1	0	33	2112 66	1	0	53
256 71	1	0	14	914 16	1	0	34	2130 00	1	0	53
258 06	1	0	15	922 64	1	0	34	2161 31	1	0	54
259 68	1	0	15	926 89	1	0	35	2219 84	1	0	54
276 92	1	0	16	940 80	1	0	35	2240 00	1	0	55
300 56	1	0	16	954 02	1	0	36	2309 83	1	0	55
301 64	1	0	17	979 31	1	0	36	2350 12	1	0	56
304 14	1	0	17	981 81	1	0	36	2382 10	1	0	56
310 38	1	0	17	997 03	1	0	37	2400 00	1	0	56
319 55	1	0	18	1013 74	1	0	37	2412 37	1	0	57
347 45	1	0	18	1024 92	1	0	38	2441 24	1	0	57
353 17	1	0	19	1032 76	1	0	38	2501 16	1	0	58
379 96	1	0	19	1047 41	1	0	39	2545 22	1	0	58
380 77	1	0	19	1053 22	1	0	39	2546 34	1	0	58
383 41	1	0	20	1057 41	1	0	39	2547 86	1	0	59
422 75	1	0	20	1106 04	1	0	40	2554 62	1	0	59
432 00	1	0	21	1131 90	1	0	40	2713 00	1	0	60
456 49	1	0	21	1153 48	1	0	41	2750 00	2	1	61
463 47	1	0	22	1170 50	1	0	41	2787 10	1	0	61
504 09	1	0	22	1178 18	1	0	42	2800 00	1	0	61
509 83	1	0	22	1182 81	1	0	42	2811 81	1	0	62
521 62	1	0	23	1188 00	1	0	42	3000 00	2	1	63
546 59	1	0	23	1195 34	1	0	43	3023 47	1	0	63
555 52	1	0	24	1239 62	1	0	43	3080 80	1	0	64
558 55	1	0	24	1275 52	1	0	44	3124 24	1	0	64
559 77	1	0	25	1329 85	1	0	44	3158 69	1	0	64
560 43	1	0	25	1388 91	1	0	44	3185 49	1	0	65
562 25	1	0	25	1400 47	1	0	45	3187 90	1	0	65
564 55	1	0	26	1409 68	1	0	45	3266 67	1	0	66
572 73	1	0	26	1419 14	1	0	46	3333 09	1	0	66
611 39	1	0	27	1450 60	1	0	46	3416 00	1	0	67

VALUE	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
3443 81	1	0	67	4956 57	1	0	78	9644 80	1	0	89
3484 08	1	0	67	4984 71	1	0	79	9751 53	1	0	90
3615 50	1	0	68	5184 00	1	0	79	9939 80	1	0	90
3680 00	1	0	68	5257 14	1	0	80	10008 00	1	0	91
3680 69	1	0	69	5400 00	1	0	80	10359 11	1	0	91
3684 53	1	0	69	5442 23	1	0	81	10830 74	1	0	92
3738 51	1	0	69	5490 20	1	0	81	11015 38	1	0	92
3750 00	1	0	70	5500 00	1	0	81	11195 81	1	0	92
3750 00	1	0	70	5524 65	1	0	82	11219 51	1	0	93
3875 27	1	0	71	5591 84	1	0	82	11432 52	1	0	93
3904 69	1	0	71	5720 09	1	0	83	11560 08	1	0	94
3905 33	2	1	72	5950 00	1	0	83	11913 16	1	0	94
4114 29	1	0	72	6000 00	1	0	83	12347 74	2	1	95
4200 00	1	0	73	6400 00	1	0	84	12989 88	1	0	95
4264 00	1	0	73	7000 00	1	0	84	15110 29	1	0	96

4290 25	1	0	74	7145 65	1	0	85	16100 00	1	0	96
4327 25	1	0	74	7280 00	1	0	85	17894.41	1	0	97
4368 00	1	0	75	7750 43	1	0	85	17945.38	1	0	97
4540 54	1	0	75	7760 93	1	0	85	19980 00	1	0	97
4576 00	1	0	75	7836 91	1	0	85	20753.48	1	0	98
4620 00	1	0	76	8084 21	1	0	85	21000 00	1	0	98
4700 00	1	0	76	8631 35	1	0	85	21994.43	1	0	99
4730 30	1	0	77	9000 00	1	0	85	22880.32	1	0	99
4777 53	1	0	77	9143 00	1	0	85	29140.95	1	0	100
4848 00	1	0	78	9360 97	1	0	85	67735.85	1	0	100
4888 32	1	0	78	9600 00	1	0	85				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

154	1808	*****
44	4834	*****
13	8060	***
13	11286	**
3	14512	*
2	17738	*
4	20964	*
1	24190	
0	27416	
1	30642	
0	33868	
0	37094	
0	40320	
0	43546	
0	46772	
0	49998	
0	53224	
0	56450	
0	59676	
0	62902	
1	66128	
		I. + . I.
		0 40 80 120 160 200

HISTOGRAM FREQUENCY

MEAN	3820.998	STD ERR	410.163	MEDIAN	1899.632
MODE	0.0	STD DEV	6301.047	VARIANCE	39703189.7
KURTOSIS	46.151	S E KURT	1.992	SKEWNESS	5.429
S E SKEW	.158	RANGE	67735.849	MINIMUM	0.0
MAXIMUM	67735.849	SUM	901755.618		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	75.189	25.00	560.886	33.30	892.278
50.00	1899.632	66.70	3446.993	75.00	4567.135
90.00	9960.259				

VALID CASES 236 MISSING CASES 0

AMORT AREA. MORTAR / MASONRY SURFACE

VALUE	CUM			CUM			CUM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
0.0	70	30	30	1721.80	1	0	49	2594.43	1	0	69
66.30	1	0	30	1736.00	1	0	50	2601.04	1	0	69
158.99	1	0	31	1743.71	1	0	50	2614.06	1	0	69
181.82	1	0	31	1795.92	1	0	50	2619.23	1	0	70
239.35	1	0	31	1822.27	1	0	51	2631.10	1	0	70
335.29	1	0	32	1830.77	1	0	51	2702.30	1	0	71
349.44	1	0	32	1842.36	1	0	52	2724.55	1	0	71
369.88	1	0	33	1855.87	1	0	52	2834.12	1	0	72
389.70	1	0	33	1870.00	1	0	53	3000.22	1	0	72
390.24	1	0	33	1889.93	1	0	53	3005.75	1	0	72
472.55	1	0	34	1920.00	1	0	53	3038.77	1	0	73

506	61	1	0	34	1923	11	1	0	54	3074	89	1	0	73
618	82	1	0	35	1930	19	1	0	54	3118	86	1	0	74
663	27	1	0	35	1942	95	1	0	55	3193	96	1	0	74
713	53	1	0	36	1967	82	1	0	55	3221	05	1	0	75
720	30	1	0	36	1988	01	1	0	56	3223	08	1	0	75
762	55	1	0	36	2005	57	1	0	56	3560	91	1	0	75
864	86	1	0	37	2025	76	1	0	56	3565	64	1	0	76
880	00	1	0	37	2044	19	1	0	57	3567	19	1	0	76
917	48	1	0	38	2057	28	1	0	57	3669	38	1	0	77
947	37	1	0	38	2064	10	1	0	58	3800	00	1	0	77
1066	95	1	0	39	2064	96	1	0	58	3828	86	1	0	78
1102	17	1	0	39	2069	20	1	0	58	3924	48	1	0	78
1121	10	1	0	39	2091	12	1	0	59	3967	24	1	0	78
1123	28	1	0	40	2126	91	1	0	59	4026	06	1	0	79
1186	64	1	0	40	2137	00	1	0	60	4200	00	1	0	79
1215	75	1	0	41	2149	88	1	0	60	4248	93	1	0	80
1254	89	1	0	41	2179	55	1	0	61	4275	31	1	0	80
1280	36	1	0	42	2229	34	1	0	61	4297	54	1	0	81
1415	31	1	0	42	2233	61	1	0	61	4361	23	1	0	81
1452	90	1	0	42	2238	28	1	0	62	4402	83	1	0	81
1456	68	1	0	43	2253	41	1	0	62	4457	14	1	0	82
1457	24	1	0	43	2253	43	1	0	63	4480	00	1	0	82
1464	05	1	0	44	2261	23	1	0	63	4524	26	1	0	83
1491	31	1	0	44	2264	15	1	0	64	4661	49	1	0	83
1502	17	1	0	44	2302	40	1	0	64	4919	37	1	0	83
1503	95	1	0	45	2339	09	1	0	64	5018	02	1	0	84
1558	76	1	0	45	2352	59	1	0	65	5847	27	1	0	84
1592	66	1	0	46	2369	82	1	0	65	6216	00	1	0	85
1595	45	1	0	46	2473	95	1	0	66	6421	68	1	0	85
1602	34	1	0	47	2480	78	1	0	66	6538	85	1	0	86
1620	16	1	0	47	2503	91	1	0	67	6668	10	1	0	86
1627	60	1	0	47	2509	68	1	0	67	7350	19	1	0	86
1655	00	1	0	48	2513	99	1	0	67	7530	15	1	0	87
1674	42	1	0	48	2556	14	1	0	68	7645	87	1	0	87
1702	34	1	0	49	2576	22	1	0	68	8547	48	1	0	88

VALUE	CUM			CUM			CUM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
9149.26	1	0	88	14140.09	1	0	92	33611.21	1	0	96
9681.09	1	0	89	14352.38	1	0	93	34734.18	1	0	97
10113.60	1	0	89	14884.71	1	0	93	36048.53	1	0	97
10155.50	1	0	89	14985.00	1	0	94	39320.64	1	0	97
10262.85	1	0	90	17532.18	1	0	94	41240.77	1	0	98
10863.03	1	0	90	19959.18	1	0	94	41421.57	1	0	98
12450.69	1	0	91	23835.37	1	0	95	44772.70	2	1	99
12882.04	1	0	91	24000.00	1	0	95	49950.00	1	0	100
13668.64	2	1	92	29970.00	1	0	96	69930.00	1	0	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

177	1665	*****
25	4995	*****
7	8325	**
6	11635	**
6	14925	**
2	18315	*
0	21645	
2	24975	*
0	28305	
1	31635	
3	34965	*
1	38295	
2	41625	*
2	44955	*
0	48285	
1	51615	
0	54945	
0	58275	
0	61605	
0	64935	
1	68265	

I + I + I - I + I + I
0 40 80 120 160 200
HISTOGRAM FREQUENCY

MEAN	4502.158	STD ERR	.219.815	MEDIAN	1769.813
MODE	0.0	STD DEV	9521.793	VARIANCE	90664516.1
KURTOSIS	16.309	S E KURT	1.942	SKENNESS	3.807
S E SKEN	158	RANGE	62930.000	MINIMUM	0.0
MAXIMUM	69920.000	SUM	1052511.59		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	390.201
50.00	1769.813	66.70	2510.018	75.00	3501.450
90.00	11339.328				
VALID CASES	236	MISSING CASES	0		

ASTONE AREA STONE SURFACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0.0	200	84.7	84.7	84.7	84.7
16.20	1	.4	.4	.4	85.2
22.89	1	.4	.4	.4	85.6
23.39	1	.4	.4	.4	86.0
52.09	1	.4	.4	.4	86.4
57.92	1	.4	.4	.4	86.9
74.18	1	.4	.4	.4	87.3
84.00	1	.4	.4	.4	87.7
145.60	1	.4	.4	.4	88.1
160.00	1	.4	.4	.4	88.6
170.53	1	.4	.4	.4	89.0
174.98	1	.4	.4	.4	89.4
315.89	1	.4	.4	.4	89.8
342.66	1	.4	.4	.4	90.3
384.62	1	.4	.4	.4	90.7
398.69	1	.4	.4	.4	91.1
439.92	1	.4	.4	.4	91.5
475.35	1	.4	.4	.4	91.9
738.46	1	.4	.4	.4	92.4
792.00	1	.4	.4	.4	92.8
872.84	1	.4	.4	.4	93.2
1026.48	1	.4	.4	.4	93.6
1304.01	1	.4	.4	.4	94.1
1561.68	1	.4	.4	.4	94.5
2202.97	1	.4	.4	.4	94.9
2333.43	2	8	8	8	95.8
2897.56	1	.4	.4	.4	96.2
4040.82	1	.4	.4	.4	96.6
7781.95	1	.4	.4	.4	97.0
13945.96	1	.4	.4	.4	97.5
14426.04	2	8	8	8	98.3
15164.31	1	.4	.4	.4	98.7
15515.47	1	.4	.4	.4	99.2
17164.03	1	.4	.4	.4	99.6
24272.82	1	.4	.4	.4	100.0
TOTAL	236	100.0	100.0		

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES

221	576	*****
3	1732	
3	2898	
1	4044	
0	5200	
0	6356	
1	7512	
0	8668	
0	9824	
0	10980	
0	12136	
0	13292	
3	14448	
2	15604	
1	16760	
0	17916	
0	19072	
0	20228	
0	21384	
0	22540	
1	23696	

0 80 160 240 320 400
HISTOGRAM FREQUENCY

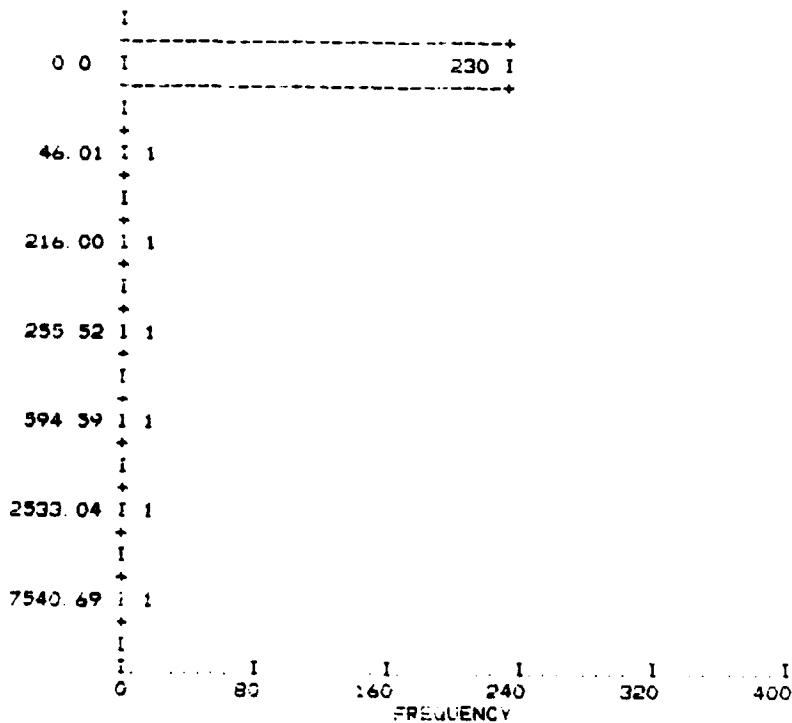
MEAN	619.235	STD ERR	189.134	MEDIAN	0.0
MODE	0.0	STD DEV	2905.533	VARIANCE	8442122.88
KURTOSIS	33.040	S E KURT	1.992	SKEWNESS	5.627
S E SKEW	158	RANGE	24272.812	MINIMUM	0.0
MAXIMUM	24272.818	SUM	146139.376		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
70.00	355.385				

VALID CASES 236 MISSING CASES 0

AGALV AREA GALVANIZED SURFACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0.0	230	97.5	97.5	97.5
	46.01	1	.4	.4	97.9
	216.00	1	.4	.4	98.3
	255.52	1	.4	.4	98.7
	594.59	1	.4	.4	99.2
	2533.04	1	.4	.4	99.6
	7540.69	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



MEAN	47.398	STD ERR	33.762	MEDIAN	0.0
MODE	0.0	STD DEV	518.655	VARIANCE	269003.034
KURTOSIS	189.464	S E KURT	1.992	SKEWNESS	13.419
S E SKEW	158	RANGE	7540.690	MINIMUM	0.0
MAXIMUM	7540.690	SUM	11185.852		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 236 MISSING CASES 0

OTHER AREA OTHER MATERIALS

Value	Cum				Cum				Cum			
	Freq	Pct	Pct	Value	Freq	Pct	Pct	Value	Freq	Pct	Pct	Value
0 0	104	44	44	333 33	1	0	63	1045 75	1	0	82	
12 55	1	0	44	337 93	1	0	53	1114 16	1	0	82	
17 77	1	0	45	346 42	1	0	54	1170 73	1	0	83	
19 47	1	0	45	364 03	1	0	54	1200 00	1	0	83	
23 87	1	0	46	365 22	1	0	54	1222 00	1	0	83	
30 32	1	0	46	366 39	1	0	55	1336 41	1	0	84	
41 90	1	0	47	366 55	1	0	55	1400 00	1	0	84	
45 45	1	0	47	369 34	1	0	56	1600 86	1	0	85	
49 20	1	0	47	375 05	1	0	56	1612 00	1	0	85	
52 14	1	0	48	378 95	1	0	57	1654 01	1	0	86	
55 04	1	0	48	385 17	1	0	57	1816 35	1	0	86	
118 60	1	0	49	388 24	1	0	57	1884 82	1	0	86	
120 00	1	0	49	390 24	1	0	58	1939 66	1	0	87	
132 62	1	0	50	392 93	1	0	58	1998 00	1	0	87	
144 95	1	0	50	407 70	1	0	59	2034 62	1	0	88	
154 49	1	0	50	408 16	1	0	59	2069 75	1	0	88	
221 48	1	0	51	411 75	1	0	59	2071 66	1	0	89	
232 26	1	0	51	412 90	1	0	70	2085 59	1	0	89	
242 97	1	0	52	414 65	1	0	70	2184 00	1	0	89	
246 33	1	0	52	418 73	1	0	71	2251 17	1	0	90	
253 65	1	0	53	434 09	1	0	71	2255 81	1	0	90	
254 07	1	0	53	486 13	2	1	72	2510 05	1	0	91	
257 50	1	0	53	486 53	1	0	72	2768 00	1	0	91	
261 51	1	0	54	493 51	1	0	73	2830 40	1	0	92	
261 62	1	0	54	499 79	1	0	73	3040 00	1	0	92	
266 52	1	0	55	527 51	1	0	74	3276 50	1	0	92	
268 53	1	0	55	527 74	1	0	74	3534 92	1	0	93	
276 26	1	0	56	544 50	1	0	75	3810 96	1	0	93	
281 80	1	0	56	560 00	1	0	75	4152 47	1	0	94	
281 90	1	0	56	568 42	1	0	76	4488 61	1	0	94	
287 40	1	0	57	599 47	1	0	76	5320 00	1	0	94	
287 61	1	0	57	600 00	1	0	76	6285 71	1	0	95	
295 31	1	0	58	602 55	1	0	77	7896 33	1	0	95	
306 85	1	0	58	607 29	1	0	77	8000 00	1	0	96	
318 44	1	0	58	620 11	1	0	78	8201 04	1	0	96	
318 48	1	0	59	567 04	1	0	78	8295 87	1	0	97	
320 00	1	0	59	706 56	1	0	79	11557 8	1	0	97	
320 89	1	0	60	742 66	1	0	79	12900 00	1	0	97	
323 08	1	0	60	515 45	1	0	79	14335 65	1	0	98	
323 74	1	0	61	829 05	1	0	80	14938 32	1	0	98	
325 51	1	0	61	864 66	1	0	80	21236 52	1	0	99	
326 53	1	0	61	879 07	1	0	81	22795 97	1	0	99	
328 95	1	0	62	399 51	1	0	81	27998 29	1	0	100	
330 73	1	0	62	1029 91	1	0	81	52448 00	1	0	100	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES

213	1244	*****
9	3742	*
2	6240	
4	8738	*
1	11236	
3	13734	
0	16232	
0	18730	
1	21228	
1	23726	
0	26224	
1	28722	
0	31220	
0	33718	
0	36216	
0	38714	
0	41212	
0	43710	
0	46208	
0	48706	
1	51204	

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0 80 160 240 320 400
HISTOGRAM FREQUENCY

MEAN	1361.574	STD ERR	309.551	MEDIAN	149.720
MODE	0.0	STD DEV	4755.416	VARIANCE	22613985.3
KURTOSIS	63.393	S E KURT	1.992	SKEWNESS	7.118
S E SKEW	158	RANGE	52448.000	MINIMUM	0.0
MAXIMUM	52448.000	SUM	321331.467		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	149.720	66.70	385.413	75.00	566.316
90.00	2332.080				
VALID CASES	236	MISSING CASES	0		

Roof and roof-mounted apparatus items and material types

CAREA EXPOSED CHIMNEY AREA

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0	114	48.3	48.3	48.3	48.3
4	1	.4	.4	.4	48.7
6	1	.4	.4	.4	49.2
8	1	.4	.4	.4	49.6
10	8	3.4	3.4	3.4	53.0
12	1	.4	.4	.4	53.4
15	1	.4	.4	.4	53.8
16	1	.4	.4	.4	54.2
18	2	.8	.8	.8	55.1
20	10	4.2	4.2	4.2	59.3
24	1	.4	.4	.4	59.7
25	1	.4	.4	.4	60.2
28	1	.4	.4	.4	60.6
30	12	5.1	5.1	5.1	65.7
36	3	1.3	1.3	1.3	66.9
40	7	3.0	3.0	3.0	69.9
48	1	.4	.4	.4	70.3
50	5	2.1	2.1	2.1	72.5
60	11	4.7	4.7	4.7	77.1
63	1	.4	.4	.4	77.5
64	2	.8	.8	.8	78.4
70	4	1.7	1.7	1.7	80.1
80	8	3.4	3.4	3.4	83.5
90	2	.8	.8	.8	84.3
100	9	3.8	3.8	3.8	88.1
110	1	.4	.4	.4	88.6
112	1	.4	.4	.4	89.0
120	5	2.1	2.1	2.1	91.1
121	1	.4	.4	.4	91.5
130	1	.4	.4	.4	91.9
136	1	.4	.4	.4	92.4
140	1	.4	.4	.4	92.8
160	2	.8	.8	.8	93.6
170	3	1.3	1.3	1.3	94.9
200	4	1.7	1.7	1.7	96.6
206	1	.4	.4	.4	97.0
400	2	.8	.8	.8	97.9
120	1	.4	.4	.4	98.3
600	1	.4	.4	.4	98.7
800	1	.4	.4	.4	99.2
1800	2	.8	.8	.8	100.0
TOTAL	236	100.0		100.0	

JAREA EXPOSED CHIMNEY AREA

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

197	40	*****
24	125	*****
8	212	**
0	298	
3	384	*
0	470	
0	556	
1	642	
0	728	
1	814	
0	900	
0	986	
0	1072	
0	1158	
0	1244	
0	1330	
0	1416	
0	1502	
0	1588	
0	1674	
2	1760	*

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 0 40 80 120 160 200
 HISTOGRAM FREQUENCY

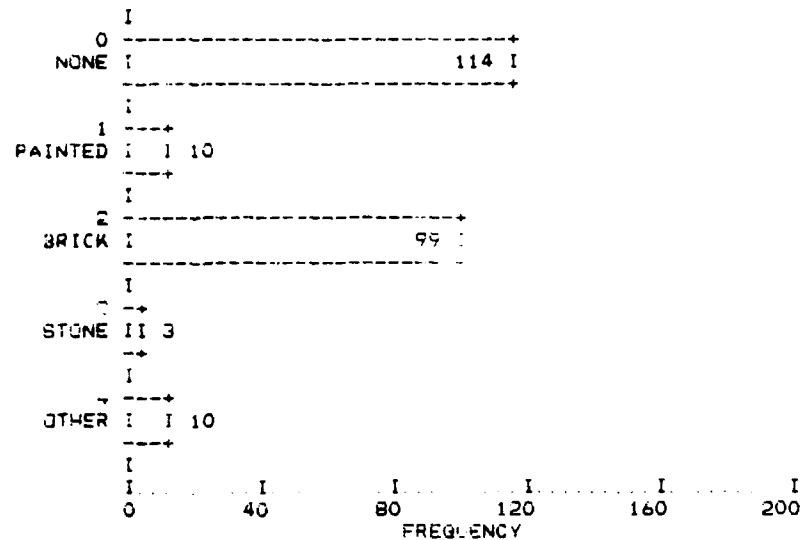
MEAN	58.288	STD ERR	11.979	MEDIAN	10.000
MODE	0.0	STD DEV	184.031	VARIANCE	33867.372
KURTOSIS	68.674	S E KURT	1.992	SKEWNESS	7.754
S E SKEW	.158	RANGE	1800.000	MINIMUM	0.0
MAXIMUM	1800.000	SUM	13756.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	10.000	66.70	36.316	75.00	60.000
90.00	120.000				

VALID CASES 236 MISSING CASES 0

CMAT CHIMNEY MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	114	48.3	48.3	48.3
PAINTED	1	10	4.2	4.2	52.5
BRICK	2	99	41.9	41.9	94.5
STONE	3	3	1.3	1.3	95.8
OTHER	4	10	4.2	4.2	100.0
	TOTAL	236	100.0	100.0	



MEAN	1.089	STD ERR	.075	MEDIAN	1.000
MODE	0.0	STD DEV	1.154	VARIANCE	1.332
KURTOSIS	-1.613	S E KURT	1.992	SKEWNESS	.545
S E SKEW	.158	RANGE	4.000	MINIMUM	0.0
MAXIMUM	4.000	SUM	257.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	1.000	66.70	2.000	75.00	2.000
90.00	2.000				

VALID CASES 236 MISSING CASES 0

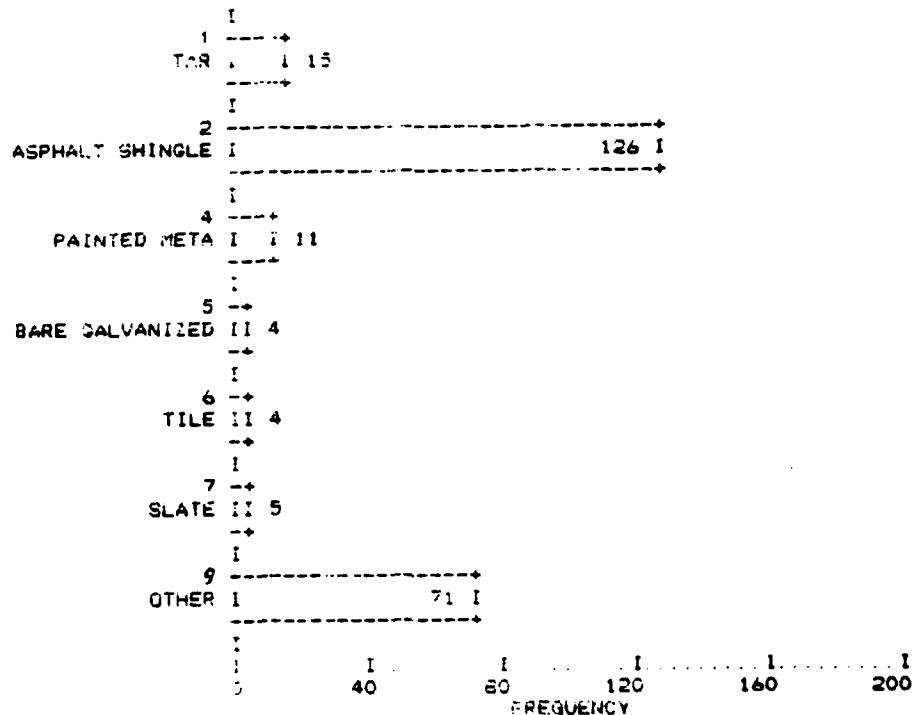
ESAREA AREA OF EXPOSED ROOF

VALUE	CUM			CUM			CUM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
60	1	0	0	2100	1	0	43	10000	5	2	69
210	1	0	1	2160	3	1	44	11250	1	0	70
300	1	0	1	2200	1	0	44	12000	5	2	72
600	2	1	2	2210	2	1	45	13000	1	0	72
720	2	1	3	2240	2	1	46	15000	2	1	73
800	3	1	4	2242	1	0	47	18900	1	0	74
900	1	0	5	2250	4	2	48	20000	4	2	75
1000	5	2	7	2260	1	0	49	22500	1	0	76
1080	3	1	8	2380	2	1	50	25000	3	1	77
1100	4	2	10	2400	7	3	53	26250	1	0	78
1114	1	0	10	2410	1	0	53	30000	5	2	80
1120	1	0	11	2422	1	0	53	40000	6	3	82
1200	15	6	17	2500	1	0	54	45000	1	0	83

FORMAT ROOF MATERIAL TYPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
TAR	1	15	6.4	6.4	6.4
ASPHALT SHINGLE	2	126	53.4	53.4	59.7
PAINTED META	4	11	4.7	4.7	64.4
BARE GALVANIZED	5	4	1.7	1.7	66.1
TILE	6	4	1.7	1.7	67.8
SLATE	7	5	2.1	2.1	69.9
OTHER	9	71	30.1	30.1	100.0

		TOTAL	236	100.0	100.0



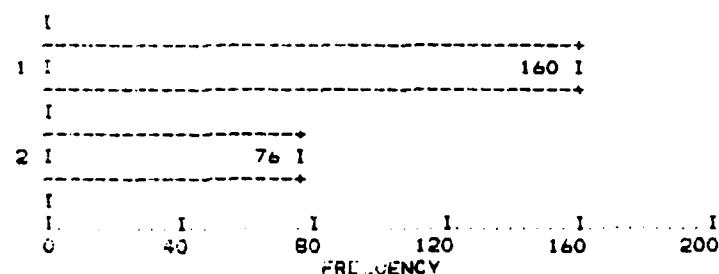
MEAN	4.360	STD ERR	.210	MEDIAN	2.000
MODE	2.000	STD DEV	3.228	VARIANCE	10.419
KURTOSIS	-1.470	S E KURT	1.992	SKEWNESS	.635
S E SKW	.158	RANGE	8.000	MINIMUM	1.000
MAXIMUM	9.000	SUM	1029.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	2.000	25.00	2.000	33.30	2.000
50.00	2.000	66.70	6.000	75.00	9.000
90.00	9.000				

VALID CASES 236 MISSING CASES 0

SLOPE INDICATOR: ROOF SLOPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	1	160	67.8	67.8	67.8
	2	76	32.2	32.2	100.0
	TOTAL	236	100.0	100.0	



MEAN	1.322	STD ERR	.030	MEDIAN	1.000
MODE	1.000	STD DEV	.468	VARIANCE	.219
KURTOSIS	-1.424	S E KURT	1.992	SKEWNESS	.767
E SKEW	.158	RANGE	1.000	MINIMUM	1.000
MAXIMUM	2.000	SUM	312.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	1.000
50.00	1.000	66.70	1.000	75.00	2.000
90.00	2.000				

VALID CASES 236 MISSING CASES 0

ITEM NO OF VENTS, FLUES, STACKS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	76	32.2	32.2	32.2
	1	14	5.9	5.9	38.1
	2	59	25.0	25.0	63.1
	3	28	11.9	11.9	75.0
	4	8	3.4	3.4	78.4
	5	4	1.7	1.7	80.1
	6	5	2.1	2.1	82.2
	7	6	2.5	2.5	84.7
	8	4	1.7	1.7	86.4
	10	8	3.4	3.4	89.8
	12	4	1.7	1.7	91.5
	14	1	.4	.4	91.9
	15	1	.4	.4	92.4
	18	1	.4	.4	92.8
	20	10	4.2	4.2	97.0
	22	1	.4	.4	97.5
	25	1	.4	.4	97.9
	28	1	.4	.4	98.3
	30	1	.4	.4	98.7
	40	2	.8	.8	99.6
	67	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 2.00 OCCURRENCES

90	- 20	*****
95	3 33	*****
19	6 67	*****
8	10 00	***
5	13 33	**
2	16 67	*
10	20 00	****
1	23 33	*
2	26 67	*
1	30 00	*
0	33 33	
0	36 67	
2	40 00	*
0	43 33	
0	46 67	
0	50 00	
0	53 33	
0	56 67	
0	60 00	
0	63 33	
1	66 67	*

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0 20 40 60 80 100

HISTOGRAM FREQUENCY

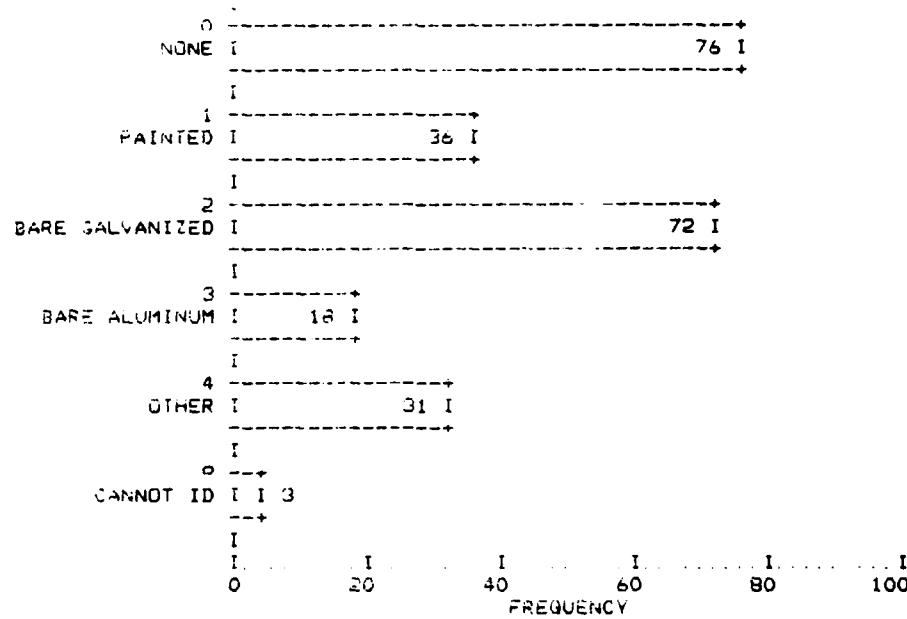
MEAN	4.233	STD ERR	4.99	MEDIAN	2.000
MODE	0.0	STD DEV	7.673	VARIANCE	58.869
KURTOSIS	22.870	S E KURT	1.992	SKENNESS	4.035
S E SKEW	158	RANGE	67.000	MINIMUM	0.0
MAXIMUM	67.000	SUM	999.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	2.000	66.70	3.000	75.00	3.750
90.00	12.000				

VALID CASES 736 MISSING CASES -

P1AT POOF APP MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	76	32.2	32.2	32.2
PAINTED	1	36	15.3	15.3	47.5
BARE GALVANIZED	2	72	30.5	30.5	78.0
BARE ALUMINUM	3	18	7.6	7.6	85.6
OTHER	4	31	13.1	13.1	98.7
CANNOT ID	9	3	1.3	1.3	100.0
	TOTAL	236	100.0	100.0	



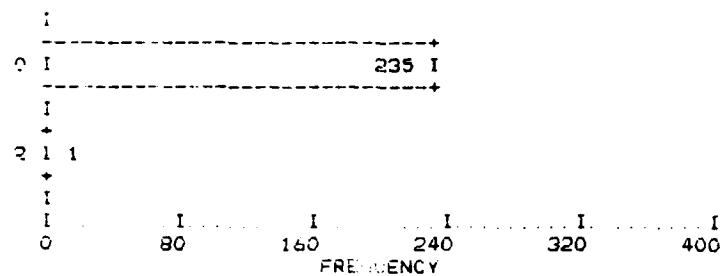
MEAN	1.631	STD ERR	1.04	MEDIAN	2.000
MODE	0.0	STD DEV	1.594	VARIANCE	2.540
KURTOSIS	4.017	S E KURT	1.992	SKEWNESS	1.402
S E SKW	1.58	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	385.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	2.000	66.70	2.000	75.00	2.000
90.00	4.000				

VALID CASES 236 MISSING CASES 0

ITEM2 NO OF SKYLIGHTS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	235	99.6	99.6	99.6
	2	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



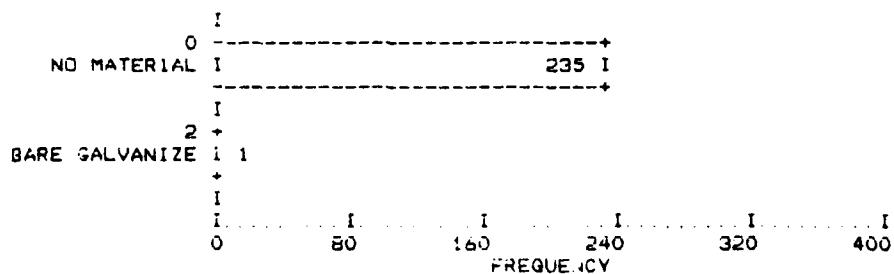
MEAN	.008	STD ERR	.008	MEDIAN	0.0
MODE	0.0	STD DEV	.130	VARIANCE	.017
KURTOSIS	236.000	S E KURT	1.992	SKEWNESS	15.362
S E SKEW	158	RANGE	2.000	MINIMUM	0.0
MAXIMUM	2.000	SUM	2.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 236 MISSING CASES 0

SKYM SKYLIGHT MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	235	99.6	99.6	99.6
BARE GALVANIZE	2	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

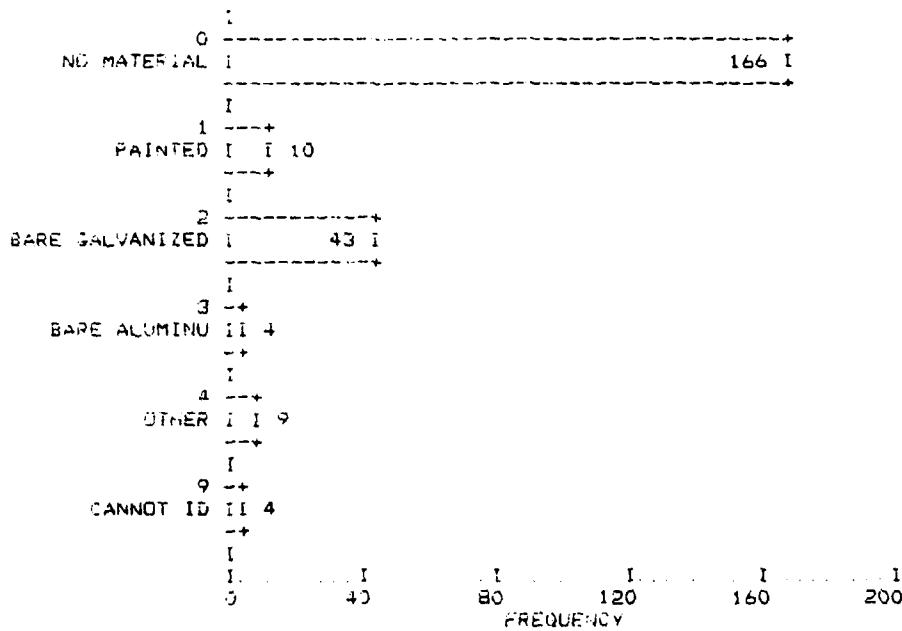


MEAN	.008	STD ERR	.008	MEDIAN	0.0
MODE	0.0	STD DEV	.130	VARIANCE	.017
KURTOSIS	236.000	S E KURT	1.992	SKEWNESS	15.362
S E SKEW	158	RANGE	2.000	MINIMUM	0.0
MAXIMUM	2.000	SUM	2.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				
VALID CASES	236	MISSING CASES	0		

FLMAT FLASHING MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	166	70.3	70.3	70.3
PAINTED	1	10	4.2	4.2	74.6
BARE GALVANIZED	2	43	18.2	18.2	92.8
BARE ALUMINU	3	4	1.7	1.7	94.5
OTHER	4	9	3.8	3.8	98.3
CANNOT ID	9	4	1.7	1.7	100.0
TOTAL	236	100.0	100.0		



	MEAN	STD ERR	0.99	MEDIAN	0.0
MODE	0.0	STD DEV	1.528	VARIANCE	2.335
KURTOSIS	12.04	S E RT	1.992	SKEWNESS	3.120
S E SKEW	.193	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	180.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	2.000
90.00	2.000				
VALID CASES	236	MISSING CASES	0		

FLASHING AREA **FLASHING AREA SG FT**

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	168	70.3	70.3	70.3
	1	1	.4	.4	70.8
	2	6	2.5	2.5	73.3
	3	10	4.2	4.2	77.5
	4	12	5.1	5.1	82.6
	5	5	2.1	2.1	84.7
	6	3	1.3	1.3	86.0
	7	2	.8	.8	86.9
	8	4	1.7	1.7	88.6
	9	1	.4	.4	89.0
	10	6	2.5	2.5	91.5
	13	1	.4	.4	91.9
	21	3	1.3	1.3	93.2
	24	2	.8	.8	94.1
	32	1	.4	.4	94.5
	60	1	.4	.4	94.9
	100	2	.8	.8	95.8
	147	1	.4	.4	96.2
	300	1	.4	.4	96.6
	346	1	.4	.4	97.0
	400	3	1.3	1.3	98.3
	460	1	.4	.4	98.7
	510	1	.4	.4	99.2
	720	1	.4	.4	99.6
	999	1	.4	.4	100.0
<hr/>					
	TOTAL	236	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES

222 20 *****
 2 40 *****
 2 115
 1 154
 0 212
 0 240
 1 308
 0 355
 4 404 *
 1 452
 0 500
 0 548
 1 575
 0 644
 0 692
 1 740
 0 798
 0 836
 0 884
 0 932
 1 940

MEAN	23.373	STD. ERR.	.7042	MEDIAN	0.0
MODE	0.0	STD. DEV.	108.177	VARIANCE	11702.371
KURTOSIS	41.020	S.E. KURT.	1.992	SKEWNESS	6.053
S.E. SKEW	158	RANGE	994.000	MINIMUM	0.0
MAXIMUM	589.000	SUM	5516.000		

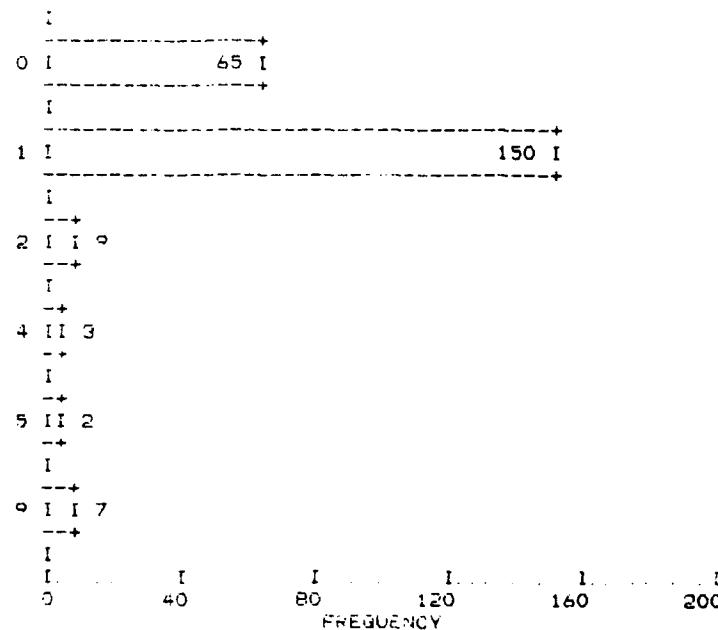
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	3.000
90.00	10.000				

VALID CASES 236 MISSING CASES 0

Rain gutters, downspouts and fences

FORMAT RAIN GUTTER MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	1	150	63.6	63.6	91.1
	2	9	3.8	3.8	94.9
	4	3	1.3	1.3	96.2
	5	2	.8	.8	97.0
	9	7	3.0	3.0	100.0
	TOTAL	236	100.0	100.0	



MEAN	1.072	STD EPR	102	MEDIAN	1.000
MODE	1.000	STD DEV	1.571	VARIANCE	2.467
KURTOSIS	17.360	S E KURT	1.992	SKEWNESS	4.000
S E SKEW	1.58	RANGE	19000	MINIMUM	0.0
MAXIMUM	9.000	SLM	233.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	1.000	66.70	1.000	75.00	1.000
90.00	1.000				
VALID CASES	236	MISSING CASES	0		

RGLENGTH RAIN GUTTER LENGTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0	65	27 5	27.5	27.5	27.5
10	1	.4	.4	.4	28.0
20	3	1.3	1.3	1.3	29.2
40	6	2.5	2.5	2.5	31.8
50	4	1.7	1.7	1.7	33.5
60	11	4.7	4.7	4.7	38.1
70	4	1.7	1.7	1.7	39.8
72	9	3.8	3.8	3.8	43.6
75	2	.8	.8	.8	44.5
78	1	.4	.4	.4	44.9
80	8	3.4	3.4	3.4	48.3
84	1	.4	.4	.4	48.7
85	1	.4	.4	.4	49.2
90	4	1.7	1.7	1.7	50.8
92	1	.4	.4	.4	51.3
100	13	5.5	5.5	5.5	56.8
102	1	.4	.4	.4	57.2
104	1	.4	.4	.4	57.6
110	1	.4	.4	.4	58.1
120	12	5.1	5.1	5.1	63.1
124	1	.4	.4	.4	63.6
125	2	.8	.8	.8	64.4
130	10	4.2	4.2	4.2	68.6
132	1	.4	.4	.4	69.1
134	1	.4	.4	.4	69.5
140	9	3.8	3.8	3.8	73.3
145	1	.4	.4	.4	73.7
150	7	3.0	3.0	3.0	76.7
156	1	.4	.4	.4	77.1
160	8	3.4	3.4	3.4	80.5
172	1	.4	.4	.4	80.9
180	5	2.1	2.1	2.1	83.1
192	1	.4	.4	.4	83.5
200	10	4.2	4.2	4.2	87.7
250	3	1.3	1.3	1.3	89.0
260	3	1.3	1.3	1.3	90.3
300	3	1.3	1.3	1.3	91.5
320	1	.4	.4	.4	91.9
325	1	.4	.4	.4	92.4
350	1	.4	.4	.4	92.8
360	1	.4	.4	.4	93.2
400	3	1.3	1.3	1.3	94.5
480	1	.4	.4	.4	94.9
500	5	2.1	2.1	2.1	97.0
600	2	.8	.8	.8	97.9
999	5	2.1	2.1	2.1	100.0
TOTAL	236	100.0	100.0		

RAIN GUTTER LENGTH

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES

75	20	*****
45	44	*****
44	115	*****
32	164	*****
11	213	*****
6	260	***
5	308	**
2	356	*
3	404	**
0	452	
5	500	***
0	518	
4	596	*
0	644	
0	672	
0	740	
0	788	
0	836	
0	884	
0	932	
0	980	***

I	+	I	+	I	+	I	+	I	+	I
0		15		30		45		60		75

HISTOGRAM FREQUENCY

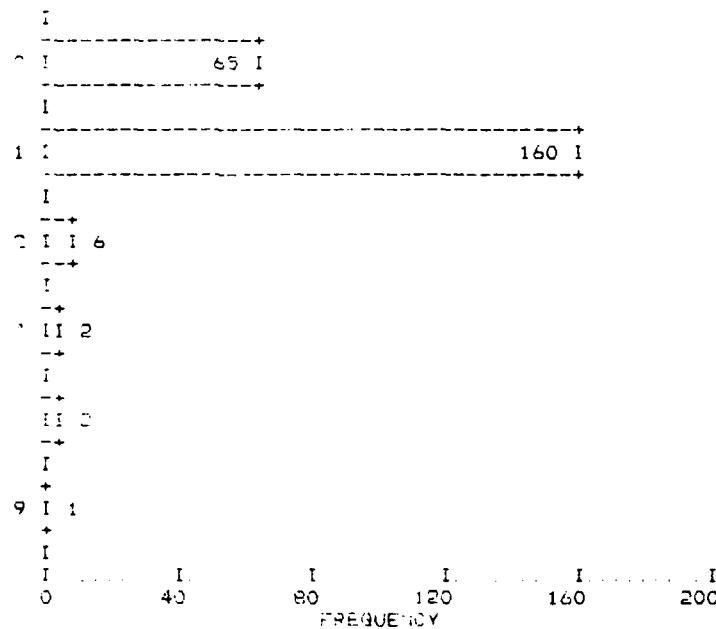
MEAN	126.586	STD ERR	11.277	MEDIAN	90.000
MODE	0.0	STD DEV	173.245	VARIANCE	30013.740
KURTOSIS	12.256	S E KURT	1.992	SKEWNESS	3.152
S E SKEW	158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	29898.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	50.000
50.00	90.000	66.70	130.000	75.00	150.000
90.00	272.000				

VALID CASES 236 MISSING CASES 0

D5F01T MATERIAL OF DOWNSPOUT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	1	160	67.8	67.8	95.3
	2	6	2.5	2.5	97.9
	4	2	.8	.8	98.7
	5	2	.8	.8	99.6
	7	1	.4	.4	100.0
	TOTAL	235	100.0	100.0	



MEAN	.843	STD ERR	.057	MEDIAN	1.000
MODE	1.000	STD DEV	.873	VARIANCE	.763
KURTOSIS	36.495	S.E. KURT	1.992	SKEWNESS	4.642
S.E. SKEW	.158	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	159.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	1.000	66.70	1.000	75.00	1.000
90.00	1.000				

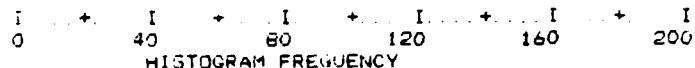
VALID CASES 236 MISSING CASES 0

DSLENG DOWNSPOUT LENGTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0	65	27 5	.4	27.5	27.5
8	1	4	.4	.4	28.0
10	1	4	.4	.4	28.4
12	1	4	.4	.4	28.8
16	2	8	.8	.8	29.7
20	5	2.5	.2.5	.2.5	32.2
24	5	2.1	.2.1	.2.1	34.3
25	3	1.3	.1.3	.1.3	35.6
26	1	.4	.4	.4	36.0
28	1	.4	.4	.4	36.4
30	6	2.5	.2.5	.2.5	39.0
32	6	2.5	.2.5	.2.5	41.5
35	3	.8	.8	.8	42.4
40	12	8.1	.8.1	.8.1	50.4
42	1	.4	.4	.4	50.8
44	1	.4	.4	.4	51.3
45	2	.8	.8	.8	52.1
48	7	3.0	.3.0	.3.0	55.1
50	12	5.1	.5.1	.5.1	60.2
52	3	1.3	.1.3	.1.3	61.4
56	26	11.0	.11.0	.11.0	72.5
62	1	.4	.4	.4	72.9
64	1	.4	.4	.4	73.3
65	2	.8	.8	.8	74.2
70	3	1.3	.1.3	.1.3	75.4
71	1	.4	.4	.4	75.8
72	2	.8	.8	.8	76.7
78	1	.4	.4	.4	77.1
80	13	5.5	.5.5	.5.5	82.6
90	1	.4	.4	.4	83.1
100	0	2.5	.2.5	.2.5	85.6
110	1	.4	.4	.4	86.0
120	10	4.2	.4.2	.4.2	90.3
125	1	.4	.4	.4	90.7
128	1	.4	.4	.4	91.1
140	2	.8	.8	.8	91.9
150	2	.8	.8	.8	92.8
160	3	1.3	.1.3	.1.3	94.1
200	3	1.3	.1.3	.1.3	95.3
240	2	.8	.8	.8	96.2
250	1	.4	.4	.4	96.6
280	2	.8	.8	.8	97.5
300	2	.8	.8	.8	98.3
360	1	.4	.4	.4	98.7
600	1	.4	.4	.4	99.2
999	2	.8	.8	.8	100.0
TOTAL	236	100.0		100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

120	20	*****
76	58	*****
19	114	*****
7	164	**
3	213	*
5	260	*
2	308	*
1	356	
0	404	
0	452	
0	500	
0	548	
1	596	
0	644	
0	692	
0	740	
0	788	
0	836	
0	884	
0	932	
0	980	*

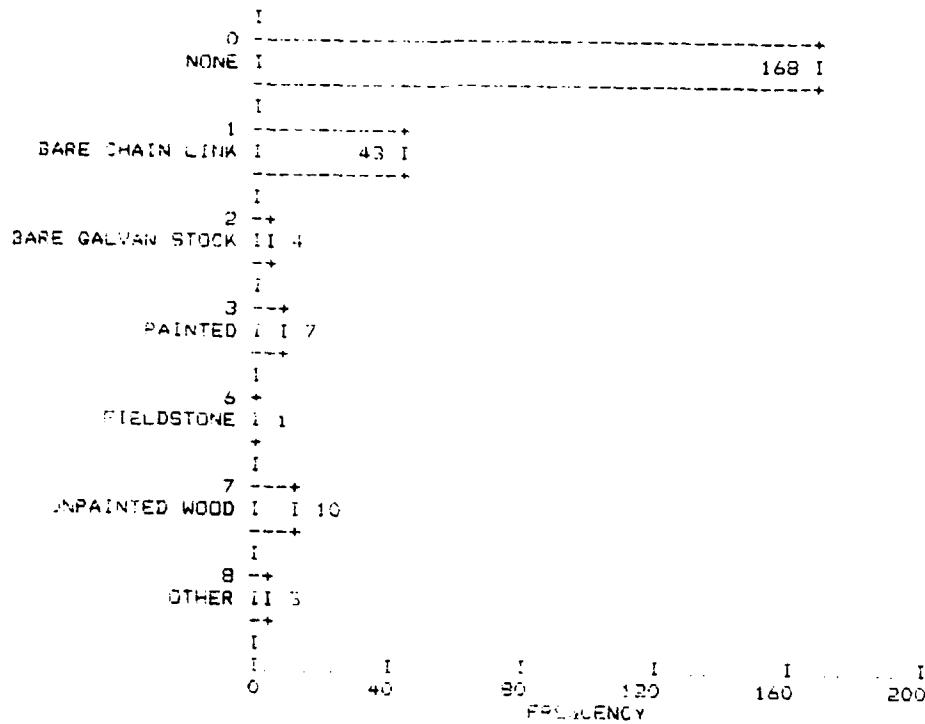


MEAN	63.648	STD ERR	7.264	MEDIAN	40.000
MODE	0.0	STD DEV	111.593	VARIANCE	12452.986
KURTOSIS	43.067	S E KURT	1.952	SKEWNESS	5.797
S E SKEW	.158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	15021.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	24.000
50.00	40.000	66.70	60.000	75.00	70.000
90.00	121.500				
VALID CASES	236	MISSING CASES	0		

FENCE FENCE TYPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	168	71.2	71.2	71.2
BARE CHAIN LINK	1	43	18.2	18.2	89.4
BARE GALVAN STOCK	2	4	1.7	1.7	91.1
PAINTED	3	7	3.0	3.0	94.1
FIELDSTONE	6	1	.4	.4	94.5
UNPAINTED WOOD	7	10	4.2	4.2	98.7
OTHER	8	3	1.3	1.3	100.0
<hr/>					
	TOTAL	236	100.0	100.0	



MEAN	.729	STD ERR	.114	MEDIAN	0.0
MODE	0.0	STD DEV	1.744	VARIANCE	3.041
KURTOSIS	8.700	S E KURT	1.992	SKEWNESS	3.069
S E SKEW	15.8	RANGE	8.000	MINIMUM	0.0
MAXIMUM	8.000	SUM	172.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	1.000
90.00	2.000				

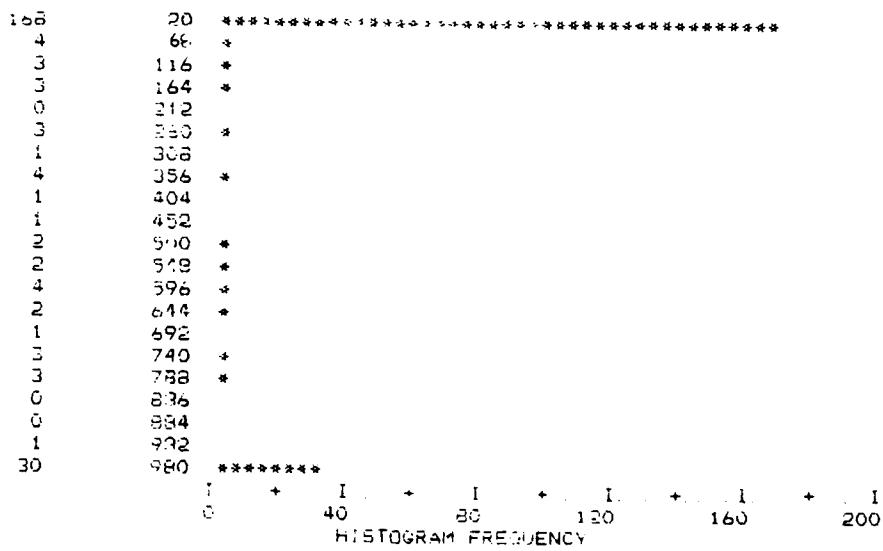
VALID CASES	236	MISSING CASES	0
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FAREA FENCE AREA

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	168	71.2	71.2	71.2
	60	1	.4	.4	71.6
	80	1	.4	.4	72.0
	90	2	.8	.8	72.9
	120	3	1.3	1.3	74.2
	150	1	.4	.4	74.6
	180	2	.8	.8	75.4
	240	2	.8	.8	76.3
	280	1	.4	.4	76.7
	300	1	.4	.4	77.1
	360	4	1.7	1.7	78.8
	400	1	.4	.4	79.2
	450	1	.4	.4	79.7
	480	1	.4	.4	80.1
	520	1	.4	.4	80.5
	525	1	.4	.4	80.9
	540	1	.4	.4	81.4
	600	4	1.7	1.7	83.1
	630	1	.4	.4	83.5

640	1	4	4	83.9
700	1	4	4	84.3
720	1	4	4	84.7
730	1	4	4	85.2
750	1	4	4	85.6
800	3	1 3	1 3	86.9
920	1	4	4	87.3
999	30	12 7	12 7	100.0
TOTAL	236	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



HISTOGRAM FREQUENCY

MEAN	196.886	STD. ERR.	23.373	MEDIAN	0.0
MODE	0.0	STD. DEV.	359.063	VARIANCE	128926.238
KURTOSIS	6.08	S.E. KURT.	1.992	SKEWNESS	1.523
S.E. SKEW	1.58	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	46465.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	180.000
90.00	699.000				

VALID CASES 236 MISSING CASES 0